Auxiliary to T Movement:

Evidence from Adverbs

by

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ABSTRACT

Throughout generative syntax, verb movement has been discussed and debated to varying degrees. Syntacticians have attempted to describe this unique form of head movement and its constraints cross-linguistically. Pollock's (1985, 1997) elaborate comparison of French and English verb movement restrictions has been considered one of the major contributions to the discussion. His analysis has led to the general understanding that auxiliaries are the only variety of verbs in English capable of moving to a higher position in the TP-layer—i.e. the T. In order to prove this claim, Pollock and others (e.g. Roberts 1993, Ernst 2002, Engels 2012, etc.) have examined the placement of other constituents—i.e. adverbs, negation, etc.

In terms of adverb placement, Cinque (1999) assigns a position for each adverb in a rigid hierarchy. Claiming the adverbs are in the specifier position, this syntactic representation follows the rich Cartographic framework. I agree that adverbs are base-generated in the specifiers; however, I argue that such a specific ordering of adverbs is rather difficult to justify. Therefore, I adopt the scope-based approach, which groups adverbs into "zones" throughout the TP-layer.

By analyzing spoken corpus data, this thesis provides empirical evidence of auxiliary verb movement occurring in Modern English. I argue that, despite being considered optional, English speakers move auxiliaries to the T more frequently, which is consistently indicated by the analysis of adverb placement in the TP-layer.

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Although there is not nearly enough space here to appropriately thank every individual who has ever mentored or supported me throughout my academic career, I would however like to thank those who have stood out and inspired me to continue to develop my passion for linguistics.

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I had the opportunity to present a section of this thesis to my Fall 2016 Syntax colleagues at our end-of-the-semester symposium. I appreciate their attentiveness and helpful questions and comments on my work. Thanks, everyone!

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Chapter 1

INTRODUCTION

1.1 Purpose of Study

Recent studies on verb movement have been concerned with not only determining the position of the verb and its movement but also with the correlation of other major sentence constituents that may arise. Languages generally differ in their restrictions and levels of optionality in terms of verb movement and placement in the clause structure. So, in order to examine this movement, prior research has had to explore surrounding functional projections within the clause.

The first of these functional projections is adverb placement. Cinque (1999) introduced the functional hierarchy for adverbs in Italian and English. His focus was on providing each adverb with a specific categorical position that would be placed into the clause structure at a fixed projection. In other words, the adverbs were base generated in a specifier position and did not exhibit movement. Since then, studies by Ernst (2002) and Engels (2012) have further provided counter arguments to Cinque in terms of his rigid structure of adverb positions in the clause. However, as I discuss later, it is evident that there are some advantages and disadvantages to the varying approaches.

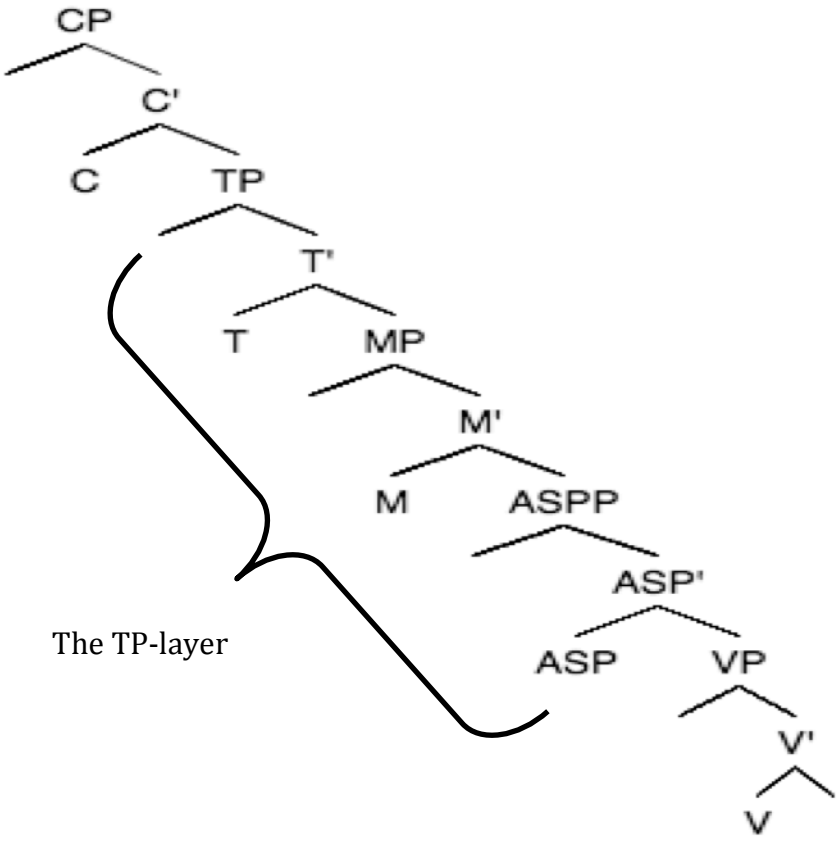
Cinque (1999) clearly associates himself with Cartographic syntax exhibited by his extensive functional projections within the clause, whereas Ernst (2002) is more concerned with the semantics of the adverbs themselves to explain their

placement in terms of verb movement. Both of these approaches will be discussed further in Chapter 3.

Within the TP-layer of the clause, the placement of other functional elements—i.e. negation, floating quantifiers—provides supporting evidence for verb movement. Cinque (1999) mentions some of the issues surrounding negation and floating quantifiers; however, he is mainly concerned with Italian syntax and remains rather brief on the topic.

As for this thesis, I concentrate most of my analysis on the English auxiliaries—i.e. *HAVE and BE*—due to the fact that main verbs in English do not exhibit movement out of the VP-layer any longer. Therefore, I will be focusing solely on the TP adverbs, due to their interaction with the auxiliaries. In (1) below, I represent the tree structure that I use and reference throughout this thesis and also indicate the location of the TP-layer with subsequent phrase heads—i.e. Mood and Aspect. I have opted to leave the position of the NegP out of (1) and will further discuss its placement in relation to auxiliary movement in Chapter 5.

(1)



1.2 Scope of Research

The main goal of this thesis is to build upon the discussion of auxiliary verb movement by analyzing the clause structure and the various functional projections associated with the TP-layer. I have listed the research questions that I address throughout this thesis below.

Research Questions:

1) Do auxiliary verbs exhibit movement to a higher position in Modern English?
2) Does richness of morphology provide evidence for auxiliary verb movement?

3) Does the position of other functional projections throughout the clause (e.g. adverbs, negation, and floating quantifiers) provide evidence for auxiliary verb movement?
4) What is the most effective way to represent the TP-layer and express auxiliary verb movement and its constraints?

In order to answer these questions, I have selected adverbs that appear in different levels of the TP-layer according to Cinque's hierarchy—i.e. *PROBABLY, POSSIBLY,* and ALWAYS. Cinque claims that the adverbs *PROBABLY* and *POSSIBLY* are generated higher in the TP. As for *ALWAYS,* he claims it is sitting lower in the TP-layer acting as an aspectual adverb. I hypothesize that there would be a greater frequency of auxiliary to T movement above the adverb *ALWAYS*, if it is in fact generated lower. Moreover, I also posit that there would be fewer occurrences of auxiliary movement to T with the adverbs *PROBABLY* and *POSSIBLY*, if they were generated higher in the TP. Therefore, I analyze spoken corpus data in order to see whether this frequency of movement to T is a occurring for the finite auxiliary forms.

Corpus Information

As for the corpus used in this thesis, I am using the Corpus of Contemporary American English (COCA), which is compiled by the researchers at Brigham Young University. COCA is a free public corpus containing a wide range of genres. There are approximately 520 million words collected from 1990 to 2015 throughout the entire corpus. As for the spoken data, it is composed of TV and radio show unscripted conversations. Although there are different registers, I am focusing on

the spoken data because I am more concerned with how speakers use auxiliaries in connection with other TP elements. For the scope of this research, I limit myself to analyzing American English speakers in COCA. I decided to use COCA's spoken data rather than the British National Corpus's (BNC) spoken data because it is significantly larger—i.e. 109 million words to 10 million words.

The results were filtered to only include those that met the scope of this thesis. For example, in order to search for auxiliary movement regarding the placement of adverb *PROBABLY*, I entered "probably has [v?n*]" or, in other words, an "adverb" + "auxiliary" + "a past participle". I used this search query with a past participle, in order to ensure that I was analyzing the auxiliary *HAVE* and not the lexical verb. Then, I altered the auxiliary-adverb order as well as the adverb and auxiliary themselves in order to obtain all of my results; however, with auxiliary *BE,* I replaced the past participle with the present participle (-ing)—i.e. [_v?g*]. Now, I turn to the layout and organization of this thesis.

1.3 Organization of Thesis

Chapter 2 looks at the historical developments of English verbs. In this chapter, I build on the ideas presented in Roberts (1993), which are associated with language change and the reanalysis of verbal categories. This chapter also attempts to address some of the concerns with richness of morphology and inflection, which are further discussed in Chapter 3. The aim of this chapter is to provide some background information relevant to verbs throughout the history of English.

In Chapter 3, I continue to review the literature by introducing the theories surrounding verb movement and adverb placement. I address these theories and general understandings surrounding verb movement cross-linguistically, as well (Roberts 1985, 1993; Pollock 1989, 1997; etc.). Following the section on verb movement, I shift toward the theories that are more concerned with the placement of adverbs in the clause (Cinque 1999, 2004; Ernst 2002; Engels 2012; etc.). I also provide the examples from their works to illustrate the differing viewpoints. By dividing the focus of the chapter into two larger sections, I hope to provide a clear representation of the theories surrounding these aspects of this thesis.

In Chapter 4, I present the corpus results and attempt to draw conclusions associated with the adverb positions and auxiliary movement, while building on ideas presented in the previous chapters. I examine and compare the results concerning the movement of auxiliaries—e.g. *HAVE* and *BE*— in relation to specific TP adverbs. Concluding this chapter, I argue that the data supports the minimalist model for adverb placement, which I present, as well.

In Chapter 5, I explore issues of negation placement and floating quantifiers in order to offer support for the minimalist representation of the clause structure as it relates specifically to auxiliary verb movement in Modern English. I also analyze corpus results to determine the grammaticality of auxiliary movement and negation with different adverbs. By doing this analysis, I attempt to determine an optimal position for the negation phrase within the TP-layer. I provide a synthesis of the analyses throughout the thesis to conclude this chapter. Here, I also emphasize the use of features as central to a minimalist tree.

In Chapter 6, I review the chapters of this thesis in order to draw conclusions about auxiliary verb movement with other TP-layer constituents. I also mention how the work of this thesis contributes to the discussion of auxiliary verb movement and justifies the use of a minimalist tree structure. To conclude, I discuss the limitations and provide suggestions for future research.

Chapter 2

HISTORICAL ANALYSIS OF VERB MOVEMENT

2.1 Introduction

The issues surrounding auxiliary verb movement in Modern English are still relevant in current syntax; however, in order to effectively discuss verb movement as it appears today, we need to present the historical changes as they have appeared in the history of the English language. As I have mentioned, auxiliaries are the only verbs in English that are capable of movement to a higher position—i.e. the T-head position; however, this relatively new movement restriction has been evolving since the Old English era.

This chapter aims to address the historical differences and changes in the English auxiliary system. Section 2.2 presents a brief historical analysis of verb movement in English diachronically, as well as the development of "do-support" in English and the issues with morphological agreement. Section 2.3 provides some foundation for adverb placement throughout the history of English, while revealing the issues that have been ignored in the recent literature.

2.2 History of Verb Movement

2.2.1 Old English

Historically, syntactic word order in English has undergone many shifts in terms of restrictions. Old English (OE) syntax more closely compares to that of

modern day Germanic languages[1]. Pintzuk (1991) expresses the differences in word order by presenting various phrase structures, two of which I have condensed to (1) and (2), where the finite verb is in final position and in medial position, respectively.

(1) …ðeah hit ær upahæfen **wære**

…although it before up-raised was

(2) …þæt he **ahof** upp þa earcan

…that he lifted up the chest

(both adapted from Pintzuk, 1991, p. 50-51)

Pintzuk (1991) and Kroch and Taylor (1994) mention that English shifted from the verb final structure of (1) to a preference for the medial position of (2) by the end of Old English. Verb movement in Old English varied from that of Modern English because OE was a V2 language. Some structures that implement a typical V2 language word order are: *wh*-questions, sentences that begin with *þa* and *þonne*[2], sentences with "preposed negated and subjunctive verbs, and certain verb-initial sentence types" (p. 53). For this thesis, it is important to understand that in Old English verb movement behaved as other modern V2 languages still do. In other words, verbs had to have moved to the T-head position in order to further move to the higher C-head position. I now further examine verb movement change throughout Middle English and Early Modern English.

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[1] For the purposes of this chapter, I follow the historical time periods outlined by Roberts (1993: 332). In other words, Old English (OE) is pre-1066, Middle English (ME) is from 1066 to 1520, and Early Modern English (ENE) is from 1520 to 1650. Any examples from 1650 to the present are considered Modern English (spelled out in this thesis). I provide glosses for the historical English examples and also translations for the Old English examples, when necessary.

[2] Kroch and Taylor (1994:53) clarifies that this is relevant "when they are equivalent to Modern English 'then'".

2.2.2 Middle and Early Modern English

Modern English speakers render the sentence in (3) ungrammatical because movement to the T-head (and the C-head, as well) is restricted to the finite auxiliaries.

(3) *Ran Emily/she?

Some Romance and Germanic languages are still capable of this type of movement to a higher position, and historically, English used to allow for a construction such as (3). In fact, we still see this movement in 15th century and early 16th century English varieties. This movement was not only evident in inverted questions but also in the negative head *not*. I provide an example of each respectively in (4) and (5) from a period of English generally analyzed as Middle English (ME).

(4) **Se** ye not how his herte is endured…?

"*See you not how his heart hardened…?*"

(5) My wife **rose nott**

"My wife did not get up"

(both adapted from Roberts, 1993, p. 239)

In (5), it is clear that main verbs in ME moved to a higher position above the negation. This movement is ungrammatical in Modern English, although it did occur into ENE. Roberts (1993) and the syntacticians who implement the AGRP into the clause structure claim that main verb movement occurred to AGR in ME and in ENE.

Syntactic constructions, such as (4) and (5), appear to decline in the 17th century (Roberts, 1993). The verb *do* began to appear with about 30% of negatives in 1600, but by 1700 it had increased to more than 80% (Roberts, 1993). So, the

question here is whether the loss of main verb movement is correlated to the reanalysis of *do* as an auxiliary verb. I will now turn to this reanalysis of verbs as auxiliaries in the history of English as a means of further the discussion on verb movement constraints.

2.2.3 Do-Support and Loss of Agreement

Throughout the 15th, 16th, and part of the 17th, the decline of main verb movement and the frequency of *do*-insertion in the T-head varied and co-occurred. It seems reasonable at first to assume the lack of main verb movement triggers the need for *do*-support and vice versa. Chomsky (1957) states that *do*-support is required in "a negated or inverted [T] just where no other auxiliary is present" (in Roberts, 1993, p. 240). However, during the 15th to the early part of the 17th century, English was evolving; therefore, there were cases where main verbs were not moving to a higher position, and there was no evidence of *do*-support either. In (6) and (7), I illustrate these cases, as mentioned in Roberts (1993: 252).

(6) y so **not** presuppose

"I so not presuppose"

(c1448: Richard Holland *The Buke of the Howlat,* 7; Gray 1985: 152)

(7) Safe on this ground we **not** fear today to tempt your laughter by our rustic play

(1637: Ben Jonson *Sad Shepherd,* Prologue 37; in Kroch 1989)

Middle English and Early Modern English evidently continued to shift in terms of the restrictions on verb movement and *do*-support. However, as I mentioned above,

Chomsky (1989; 1957) proposes that in Modern English we see the following rule in (8).

(8) He left (Obligatory Affix-hopping)

He didn't leave (Obligatory *do*-insertion)
Did he leave?

*He not left (Illicit Affix-Hopping)

In other words, Modern English needs *do* in the T-head when there is no auxiliary in the clause; therefore, this "dummy verb *do*" is acting as an auxiliary in the presence of negation (not or n't) and *wh*-questions (Roberts, 1993, p. 240). The question of where this *do* came from is debated[3], but I will leave this issue alone at this time. Rather, I now turn the focus to issues of agreement in English as a means of discussing verb movement.

In terms of morphological agreement, which was briefly discussed in section 2.2.2, English has lost much of its inflectional endings. Mossé (1968) provides a paradigm of the present tense for weak verbs in ME (in Roberts, 1993, p. 256), which I reiterate in (9).

(9)

1sg:	sing**e**
2sg:	sing**est**
3sg:	sing**eth** (south)/sing**es** (north)
1,2,3pl:	sing**en** (midland)/sing**eth** (south)/sing**es** (north)

Clearly, Middle English had morphological endings for every person in the singular, as well as some geographical differences in these endings. Gray (1985) further shows how this paradigm shifted in a century, in (10) (in Roberts, 1993, p. 257).

(10) *1400* *1500*

[3] Further discussion Ellegård, 1953; Visser, 1963-73; and Denison, 1985.

cast**(e)**	cast
cast**est**	cast**est**
cast**eth**	cast**eth**
cast**e(n)**	cast**(e)**
cast**e(n)**	cast**(e)**
cast**e(n)**	cast**(e)**

By the 16th century, the plural morphological ending has disappeared. Roberts (1993) mentions that "Palsgrave's (1530) French grammar give no 1sg or plural endings (for English verbs), but quite systematically has 2sg –*est* and 3sg – *eth*" (p. 258). Middle English was actively transitioning into Early Modern English, and due to reduction in the phonology and dialectal differences, these morphological markings were eventually lost.

The loss of morphological agreement markings on English verbs occurred during the loss of main verb movement to a higher position and appearance of *do*-support; therefore, these two issues are often classified as interrelated. In Modern English, the finite auxiliaries—i.e. *BE, HAVE*, *DO,* and *MODALS*— are able to move to T; however, aside from auxiliary *BE*, these auxiliaries have lost much of their agreement, as well. The correlation between richness of morphology and movement to a higher position cannot be the sole factor in determining whether a language exhibits verb movement[4].

2.3 History of English Adverbs

This section aims to address some of the issues with adverb placement historically in English. To begin, I briefly discuss Old English adverbs and their

[4] Chapter 3, section 2.2 and 2.3 further discuss morphological effects on verb movement.

position in the clause structure, and then I continue right into Middle English and the issues that appeared then with adverbs.

Van Kemenade (2002) analyzes Old English poetry and prose in order to explain the differences in word order. She focuses on the position of the finite verb and certain adverbs—i.e. *þa* 'then'; *þonne* 'then'; *nu* 'now'; *eac* 'also'; *la* 'lo'; etc. However, due to the fact that the finite verb "is always in the highest functional head position in CP," her analysis does not directly support any of the claims of this thesis (van Kemenade, p. 364). Also, considering the variability in word order in Old English and the fact that it is a V2 language, it is difficult to compare the issues of verb movement and adverb placement in Old English to those of Modern English.

Continuing on to Middle English, adverb placement becomes more appropriate to our discussion on verb movement. Roberts (1993) unfortunately only discusses adverbs, as well as floating quantifiers, in relationship to the main inflected verb rather than an auxiliary. Here he is looking at movement of V-to-AGR in order to exhibit how main verbs moved above the adverbs and floating quantifiers in ME as well as ENE. The auxiliary verbs of Modern English were being reanalyzed during the Middle English era, and adverbs, such as probably, possibly, etc., were emerging into the language from French at this time. Therefore, we would understandably not have appropriate examples from Middle English due to the fact that the language was changing rather quickly.

In section 2.2.3, I looked at *do*-support and the loss of morphological agreement. During the emergence of *do*-support, there was a shift in the order of the adverb *never* and inflected verbs. Roberts (1993) shows that by 1600 the "V—

never" order appeared less than ten percent of the time (p. 254). In other words, this decrease in frequency supports the notion that main verbs were not moving to higher positions as frequently during the Middle English era. In conclusion, Roberts argues that there needs to be the open "possibility that some adverbs were already base-generated" and the acknowledgement that there was in fact an "increase in Adv—V order" (p. 254).

Much of Roberts' (1993) discussion is rather stipulative; however, he is not certain whether the adverb is sitting in a higher position or that the verb is not moving at this point. In other words, for adverbs, such as "soon", he is unsure whether the adverb is base-generated in a higher position (outside of his AGRP layer) with the verb moving to AGR or that the main verb not moving anymore (staying in the VP layer). Cinque's (1999) functional hierarchy places the adverb "soon" rather low in the TP layer; therefore, it is difficult to see (in Middle English) whether main verb movement was still occurring or simply that the adverb was generated above the VP, as we would expect. As for verb movement, Roberts (1993) is using AGR and referencing movement to this head, which would be lower than the Tense phrase anyway. Since the AGRP is not explicitly necessary, I will claim Roberts' discussion of the adverb "soon" is evidence that verbs were not moving to higher positions as frequently at this time in Middle English.

2.4 Conclusion

Throughout this chapter, I presented some of the historical effects on verb movement. I highlight the need for further discussion on how these areas are

interrelated. Many of the recent studies have worked toward some understanding of auxiliary verb movement but have left much unanswered. In the following chapter, I present the prior literature on verb movement and adverb placement in order to continue to build a foundation for this thesis.

Chapter 3

VERB MOVEMENT AND ADVERB PLACEMENT

3.1 Introduction

The discussion on verb movement throughout generative syntax has been met with varying interpretations in terms of the structure of the clause and the positions of functional heads. Much of the literature has uncovered comparable analyses cross linguistically by examining primarily the Romance and Germanic languages (specifically English and French). It has often been argued by many linguists that verb movement is evidenced through the position of adverbs and negation. This chapter will focus on the theoretical frameworks that have been widely acknowledged as the foundation upon which a vast amount of the verb movement literature has been built.

The goal of chapter three is to explore these differing approaches to verb movement and adverb placement, as they have been presented throughout the literature. Section 3.2 addresses the theories of verb movement proposed by Pollock (1989; 1997), Biberauer & Roberts (2010), Roberts (1985, 1993, 2001), Ayuan (2005), etc. In section 3.3, I outline the issues of adverb placement—e.g. Cinque (1999), Ernst (2002), Engels (2012), Baker (1981), etc.

3.2 Verb Movement

3.2.1 Head Movement Constraint and Restrictions

In order to discuss verb movement, it is necessary to provide some background information on head movement within generative syntax. Theoretically

speaking, Roberts (2001) defines head movement as the "case of Move-α where the value of α is X^0" (p. 113). In other words, this definition is simply stating that a functional head has the ability (sometimes obligation) to move to another functional head within a set of conditions. Originally proposed by Travis (1984), the Head Movement Constraint (HMC) is represented in Roberts (2001, p. 113) as (1):

(1) Head movement of X to Y cannot "skip" an intervening head Z.

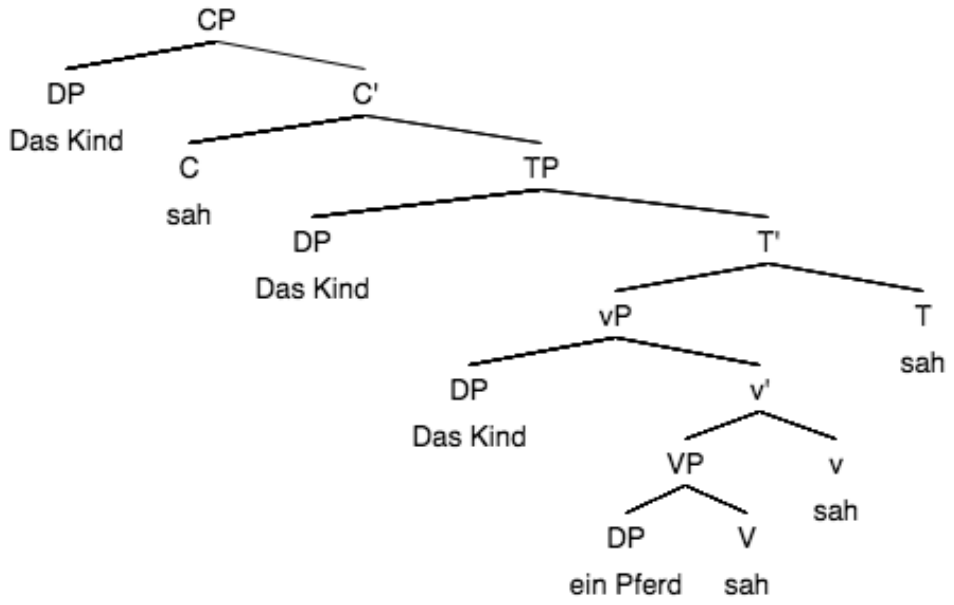
As for head movement, the prior research has focused on the functional head being a verb, i.e. verb movement. Pollock (1997) proposes that finite auxiliaries always move; however, there are different positions in the clause that are available to move to (e.g. Tense or Mood)[5], which I will continue to address below. Languages do differ in terms of the restrictions placed on verb movement, and throughout the literature, many syntacticians have attempted to account for these variations in movement from both cartographic and minimalist approaches.

If we look at the German sentence in (2), which I have adapted from Roberts (1993), we cannot explicitly see the verb move from the V in the VP layer up to the C in the CP. I have drawn a simple tree of (2) in (3) to aid in illustrating this movement.

(2) Das Kind sah ein Pferd.
'The child saw a horse.'

(3)

[5] I have represented Pollock's clause structure as a simple tree in (16) of this chapter.



In (3), I have left all traces of the verb (and subject) as it moves from the VP layer to the CP layer, which follows the HMC by Travis (1984) above. Finite German verbs move all the way to C due to the fact that if a complementizer were present it would be in complementary distribution with the verb. In other words, if we alter the sentence to include a complementizer, which is generated in the C, the final result of the sentence is (4). Therefore, the complementizer blocks movement to the C, and the finite verb remains in final position.

(4) dass das Kind ein Pferd sah
that the.NOM.SG child.NOM.SG a.ACC.SG horse.ACC.SG see.PST.3S
'that the child saw a horse'
(adapted from Roberts, 1993, p. 1)

Romance languages differ slightly in their restrictions on verb movement, compared to German, considering they are not V2 languages. In order to account for verb movement then, some syntacticians have considered the influence of rich

morphology and agreement on the verbs themselves to explain the occurrence in some languages but not others. I will now discuss these claims.

3.2.2 Morphological Effects on Movement

Verb movement has been attributed to morphological markings on the verb itself (Biberauer and Roberts, 2010; Vikner, 1995; Ernst, 2002). Biberauer and Roberts (2010) compile a simplified typology of verb movement in relation to morphological markings and agreement (in Cyrino, 2013). This typology supports the analysis from Chapter 2 on loss of tense agreement and verb movement, as well. I have reiterated their proposal in (5):

(5)

a) Rich Tense, Rich Agreement: V-to-T, null subjects (cf. Italian, Greek, Spanish…)
b) Rich Tense, Poor Agreement: V-to-T, no null subjects (cf. French, Middle English…)
c) Poor Tense, Poor Agreement: no V-to-T, no null subjects (cf. Modern English…)
d) Poor Tense, Rich Agreement: no V-to-T, null subjects (no examples represented)

(adapted from Cyrino, 2013)

This view that richness of morphology determines verb movement stems from syntacticians, such as Pollock (1989), who analyzed why we see auxiliaries still moving in Modern English and French but not main verbs in English. Comparing

these two languages, Pollock expresses the different restrictions that some languages have on movement to a higher functional head.

In Pollock (1989), a rather extensive comparative analysis of verb movement in French and English is introduced. As per his examples, the sentence in (6) is ungrammatical in Modern English, whereas the French counterpart in (7) is grammatical.

(6) *John likes not Mary

(7) Jean (n') aime pas Marie.

(both adapted from Pollock, 1989 p. 367)

Therefore, verb movement between the two languages has differing restrictions associated with movement to T (formerly INFL in Pollock, 1989) around the negation.

Pollock (1989) argues that these restrictions have to do with richness in agreement and morphology. French verbs are considered poor in terms of agreement but rich in tense, based on (5). Therefore, based on this argument of richness, verb movement to T in French must be required (Emonds, 1978; Pollock, 1989). Cyrino (2013) notes that French has an "EPP-like feature triggering V movement" (p. 299). I question whether there is a similar feature present in finite auxiliary verbs in English, as well. If so, we would need to come up with a reason why this feature is not present in main verbs in English. Since English has lost much of its tense and agreement morphology, Pollock (1989) claims verb movement does not occur for main verbs in English since they are morphologically poor, contrary to the finite auxiliaries in English. In other words, the feature may appear at the

morphosyntactic level. However, some languages and their movement constraints have challenged this correlation between richness of morphology and movement.

3.2.3 Opposition to Morphological Richness Constraints

According to Cyrino (2013), we cannot exclusively associate richness of morphology as the trigger for determining whether or not a language exhibits verb movement. Some languages and dialects, i.e. Brazilian Portuguese, have lost verb movement to a higher position, regardless of its rich morphology. The meaning of a verb can be temporal or aspectual in Brazilian Portuguese, and when a verb loses its temporal meaning, "the verb may have its movement reduced to check only aspectual features" (Cyrino, 2013, p. 315). In other words, the verb would have no reason to be moved to the T-head position, according to her analysis. There are also languages, such as Afrikaans, that exhibit verb movement to a higher position, regardless of being morphologically poor (van Gelderen, 2013).

Another language where there is variation in verb movement is Spanish. Negation placement is always positioned above the verb, as mentioned in Ayuan (2005). Spanish restriction of verb movement with a negative more closely follows the English pattern, although English prefers something to occupy the T-head position—i.e. do-support. Verb movement in Spanish occurs optionally in cases where an adverb is present, as I have reiterated from Ayuan (2005, p. 145) in (8).

(8)

a) Juan siempre le-e libro-s
   Juan.3S always read-PR.3S book-PL
   'Juan always reads books'
b) Juan le-e siempre libro-s.

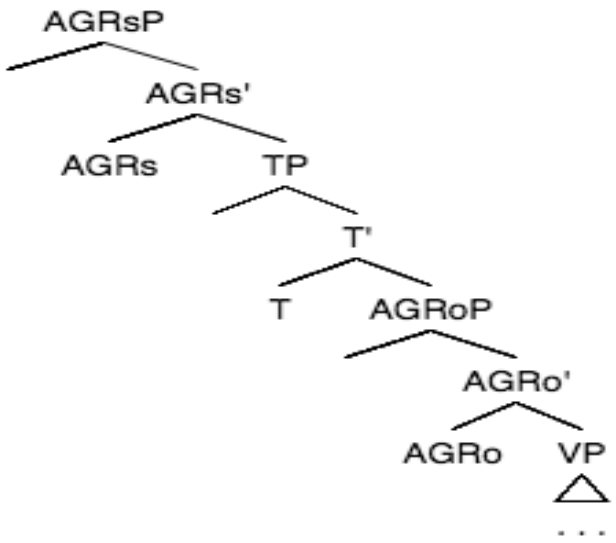
Juan.3S read-PR.3S always book-PL
'Juan often reads books.'

In this case, there is more flexibility for verb movement and adverb placement in Spanish compared to English. Despite having a rich morphology, Spanish verb movement does not contain any feature on a morphosyntactic level that would force the verb to move to the T-head. Overall, it is important then to note there are other factors that interact with movement other than those originally proposed by Pollock (1989). Now, I turn to the structure of the clause relevant to this thesis, as it has been proposed in generative syntax.

3.2.4 Clause Structure

As for the structure of the clause, Pollock (1989; 1997) claims the IP (now TP) is split into both a TP and AGRP. In (10), I have drawn out this structure (in van Gelderen, 2013, p. 116), where AGRP is also further divided into AGRs (subject) and AGRo (object).

(9)



(cf. Chomsky 1995: 60)

There are advantages and disadvantages to AGRP, but as Chomsky (1995) claims "there is no semantic contribution and no empirical evidence for the AGR heads" (quoted from van Gelderen, 2013, p. 116). It is also important to note that Roberts (1993) addresses the fact that Modern English does not raise verbs from V-to-AGR as a result of loss of morphological distinctions, which was discussed in Chapter 2. Therefore, based on these claims, English does not necessarily need to represent agreement in a functional projection, such as AGRsP and AGRoP. I assume features in the T-head fulfill the necessary agreement[6], and the finite auxiliaries are fully inflected when retrieved from the lexicon; therefore, I will leave the AGRP out of the tree structure when discussing modern English.

[6] Further discussion of features in minimalism in Chapter 5, section 5.3

3.2.5 Theta-role Theory

Another major distinction between lexical verbs and auxiliaries has to do with θ-roles on the verb itself. Roberts (1993) proposes that main verbs must assign θ-roles, whereas auxiliaries do not; therefore, the auxiliary verbs are able to move from the VP-layer to a higher position. If this is the case, why is it that main verbs in French are able to move to the T-head? They must be assigning θ-roles, as well.

To solve this issue, Pollock (1989) incorporates the AGRP into the clause. Pollock claims that the AGR head's transparency accounts for the ability for main verbs to move to the T-head and still assign θ-roles. In other words, due to the richness in morphology, the main verbs in French are able to interact with the AGR-head to assign θ-roles to the arguments. In English, however, due to the loss of rich morphology (and I would argue AGRP), main verbs are too weak to move and still carry out their responsibilities at the VP level. Therefore, θ-theory is another restriction that aids in developing a reasonable explanation for auxiliary verb movement in Modern English.

As expressed in (6) above, main verbs cannot grammatically move to a higher position above *not* in modern English. This is also applicable to floating quantifiers[7], as well as adverbs, and I provide an example of each, respectively, both adapted from Roberts (1993, p. 14) in (10) and (11).

(10) *The kids like all this book

[7] Issues concerning negation and floating quantifiers are both further discussed in greater detail in relation to auxiliary verb movement within the TP layer in Chapter 5 of this thesis.

(11) *Pete understands hardly Italian

As for (11), the adverb *hardly* is categorized as a VP adverb, according to Cinque (1999), and I will not be focusing on the VP layer directly in this thesis; however, I would like to turn to the issues surrounding adverb placement in Modern English clause structure in order to continue developing explanations for verb movement.

3.3 Adverb Placement

3.3.1 Cinque's Functional Hierarchy

The placement of adverbs in the clause structure has been considered crucial to understanding the movement restrictions on verbs cross-linguistically. The study of adverbs in terms of verb movement, however, has formed two major theories centering on the apparent positions and where they appear in the clause. Beginning with Cinque's functional hierarchy and moving toward the semantic scope approach by Ernst, I attempt to speak to their theoretical arguments.

Cinque (1999) suggests a functional hierarchy in order to account for all adverbs in a language. The structure attempts to capture a universally acceptable ranking system for clausal functional projections; however, this has been met with some speculation and counterargument. Although Cinque (2004, 1999) may take a cartographic approach to his hierarchy, which I find to be rather rigid, there are some attractive elements to his analysis.

First, Cinque argues for the idea that adverb phrases are base generated[8] in the specifier (Spec) position with the functional head being the verbal counterpart;

[8] Also Emonds 1978; Baker 1981, 1991; Pollock 1989, 1997; Williams 1994.

therefore, he is claiming any alteration to the clausal order is due to head movement. The issue surrounding this claim is that there would then need to be a position to account for each and every adverb, which in English alone would be a few thousand.

This overarching theme that the adverb and verb are closely linked is formed out of the analyses of L1 acquisition (Cinque, 2004, 1999). That is to say that lower adverbs in his hierarchy would be learned along with their verbal counterparts prior to those adverbs in higher positions that would appear when their verbal counterparts appeared. Cross-linguistically, the amount of adverb classes and types of relative order correspond to those languages with morpheme functional heads—i.e. habitual morphemes/adverbs are generated higher than completive morphemes/adverbs. In other words, languages seem to have a hierarchy for their adverbs (or adverb equivalents).

Cinque (1999) organizes the hierarchy by the three clausal layers, i.e. CP, TP, and VP. Clearly, the TP layer is the richest of the three layers containing one mood head, four modal heads, three tense (T) heads, and ten aspectual (ASP) heads. Each functional head is associated with a category that narrows down the type of adverb that can be generated in that position. However, the classification of an adverb can be difficult. Van Gelderen (2013) illustrates this difficulty by questioning whether an adverb, such as *PROBABLY,* is evidential or epistemic. Should we consider the adverb *AGAIN* to be repetitive or habitual? Cinque (1999) provides a list of thirty possible projections; however, as mentioned, there are thousands of adverbs in

English alone that would need a position. Therefore, we would also need to determine thousands of categories, in order to project these adverbs.

Cinque (1999) does briefly address the issues surrounding his hierarchy in relation to minimalism. He claims that languages all have the ability to implement different functional heads, therefore, insinuating that a language may or may not use a functional category that another language does. It is evident that he is arguing for the legitimacy of his cartographic hierarchy and suggesting that languages can signal a specific semantic interpretation of the adverb head when necessary.

Similarly, Giorgi and Pianesi (1996, 1997) focus on the minimalist approach and state that "even though a language may have access to the maximal number of functional projections made available by UG, it will each time utilize only those projections that are needed to host specific lexical or morphological material present in the numeration" (in Cinque, 1999, p. 133). In other words, the language will choose to implement the necessary functional projections needed, as Cinque suggested. This justification for seemingly endless projections overlaps slightly with Ernst's (2002) scope theory, which I address later. I now discuss recent studies that have examined how the clause structure is organized cross-linguistically in terms of verbs and adverbs[9].

3.3.2 I'-Restriction

Although languages differ in the way that their syntactic structure allows for a specific order in the clause, there appears to be a continuum based on a given

[9] Ernst (2002) uses the term 'adjuncts' to cover all adverbials, but as for this thesis, I will continue using 'adverb(s)' in its place for continuity.

language's level of restriction for adverb placement. Ernst (2002) mentions that French and Danish are on the more restricted side, whereas languages such as English and other Romance languages (French aside) are not. This has been formally called I'-Restriction[10].

There are many approaches to I'-Restriction; but, I will briefly touch on a few of the most relevant issues to this thesis. First, Belletti (1990) discusses the differences between French and English in terms of focalization in order to analyze I'-Restriction. By looking at English and Italian as counterexamples to French, Belletti claims that the former languages appear to move the subject to the left and above the clause-initial adverb, just as they are able to do with objects—i.e. John, I have seen (Ernst, 2002, p. 395)—in order to create an order such as the one in (12).

(12) She often will kiss me.

(adapted from Ernst, 2002: 396)

Since French does not focalize objects in the same way as English and Italian—i.e. Jean j'ai vu is ungrammatical—it is understandable why (12), rendered in French as (13), would also be ungrammatical.

(13) *Elle souvent m'embrassera.

This approach has been met with some opposition. Ernst (2002) states that Belletti predicts that, "any adverb that can occur in post-subject position should also be able to occur before the subject, and vice versa" (p. 396). However, it is evident that this is not possible as shown in (14).

[10] I'-restriction is referring to INFL, or rather T "Tense" in more recent syntax; however, I will continue to use the original phrasing of the theory as it is cited (Ernst, 2002, p. 388)

(14) {*Almost/*Just/*Scarcely} Audrey {almost/just/scarcely} woke up.

(adapted from Ernst, 2002, p. 396)

Ernst (2002) then claims that this is "counterintuitive" and "would require some way to make movement of the subject sensitive to some property of an intervening adverb" (p. 396). In other words, the movement would stem from some relationship between the adverb and the subject in order to support whether this movement would be restricted or not. Moreover, suggesting that the adverb is positioned clause initially in (14) and the subject moves above it ignores the fact that the subject would need to move to the specifier where the adverb would presumably be generated. Overall, I would have to argue that Belletti's (1990) approach is too adverb specific and does not account for the restrictions on movement and what explicitly triggers the elements to move to a higher position.

Another approach to I'-Restriction is that of Zwart (1996), Pollock (1997), Alexiadou and Anagnostopoulou (1998), and Cinque (1999), who analyze the approach by examining a type of clausal hierarchy of functional heads with the addition of a MoodP. This hierarchy is spelled out in (15) and is similar to that of Cinque (1999), as discussed above.

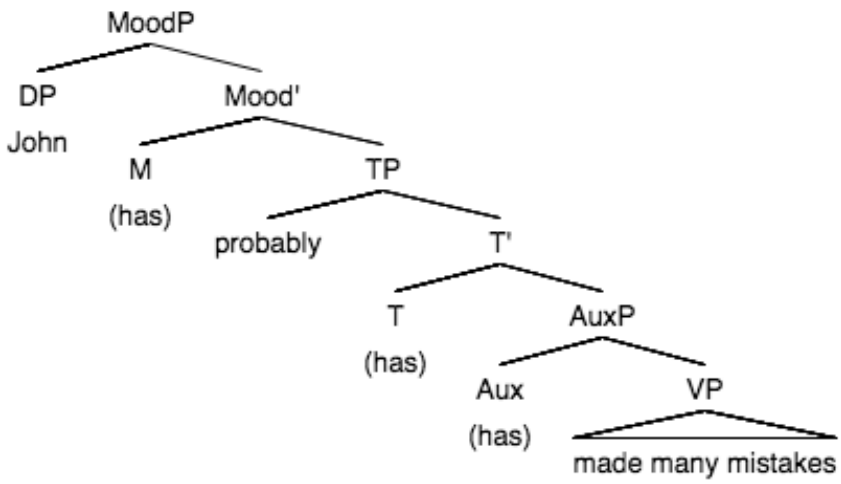
(15) Mood — (Neg) — Tense — (Neg) — Agr

Pollock (1997) addresses verb movement and adverb placement by analyzing the restrictions based on how high in the clause structure a verb can move. In other words, he says that the French auxiliary *a*—i.e. the third person singular of auxiliary verb *HAVE*—must move to the MoodP, whereas in English the auxiliary *HAVE* may only move to TP. This restriction describes how some English

adverbs are able to appear pre-verbal because they adjoin to the TP; however, he later suggests that, "English tense morphology optionally counts as mood in the auxiliaries" (Ernst, 2002, p. 397). In that case, then, mood features would be checked to derive a "Subject – Aux – AdvP order", where the auxiliary optionally raises to the Mood as is obligatory in French auxiliaries (p. 397).

I have drawn a rather simplified tree in (16) to express the structure of the clause adopted by the hierarchy of functional heads described above (15) in Pollock (1997) and others.

(16)



This tree shows multiple possible positions for auxiliary *has* in English, while keeping the adverb in a fixed position in SpecTP; however, I do not see the necessity of the MoodP specifically for English.

As for movement to check mood features, Ernst (2002) mentions that, "there is little reason to posit English tense as mood except as a way to trigger movement" (p. 397). Ernst mentions that Cinque also admits that what triggers movement to a

higher position and why it would appear in some languages (i.e. English and Italian) but be restricted entirely in others (i.e. French) is not explicitly clear. Ernst (2002) does briefly propose that there may be some features in the T-head that determine the licensing of specific adverbs, regardless of his favorability of scope-based theory.

The theories, which suggest that adverbs are in fixed positions, must have many functional heads to generate various adverbs. As I have mentioned above, auxiliaries in English may have the option of moving to MoodP, according to Pollock (1997), to produce a sentence like (17) where the subject *They* would be in SpecMoodP, the auxiliary *must* would be in Mood-head, and the adverb would be in SpecTP. But, a sentence such as (18), where we have two adverbs, creates another issue.

(17) They must obviously leave.

(18) They now must obviously leave.

(both adapted from Ernst's 2002: 398)

In (18), it is evident that there would need to be another functional projection above what Pollock has called MoodP, or else there would be no specifier position for the subject of the sentence to move to—i.e. the adverb *now* would be sitting in the Spec of the MoodP in (18). By adding another projection, we would also need to say that French auxiliaries (rather all verbs in French) must move to this new head position in order to remain consistent with its grammaticality. This approach becomes rather redundant; therefore, I find it difficult to apply to the syntax.

To restrict the number of functional projections, Ernst (2002) draws on the principle that "functional heads are legitimate iff (a) overtly realized or (b) they contribute to the semantic representation of a given sentence" (p. 398). In other words, the clause structure limits the amount of functional heads to those that are necessary based on some semantic means.

Overall, the clause structure would become quite cartographic as we add additional functional projections to provide positions for more adverbs. Rather than focus on an expansive hierarchy like that of Cinque (1999), Ernst (2002) instead proposes a scope-based theory in an effort to justify some of the variations in the order of functional heads and adverbs. I now address scope theory as another approach to adverb placement and verb movement.

3.3.3 Ernst's Scope-based Theory

Ernst (2002) challenges the extensive functional hierarchy that Cinque (1999) and Kayne (1994) ascribe to, by introducing a theory based on the semantic requirements of adjuncts—i.e. scope theory. Although there are some general similarities to Cinque's hierarchy, scope theory centers itself around producing a range of possible positions based heavily on a set of requirements associated with the adverbs. Ernst's analysis stems from studies of semantic scope[11]. The different main classes that Ernst (2002) establishes seem to stem from a larger set of adverbial classes originally proposed by Frey and Pittner (1999) (in Haumann,

[11] Further discussion Frey & Pittner, 1998, 1999; Haider, 2000, 2004.

2007). His classes are participant, predicational, and functional adverbs, which I now briefly dissect.

The participant adverbs class is the least restrictive, i.e. having no scope requirements, and is usually expressed as a prepositional phrase. Examples of participant adverbs are locatives, instrumentals, and benefactives. The predicational adverbs class is seemingly the most restrictive, i.e. having tight scope requirements, and can be subcategorized hierarchically. The subclasses are roughly ordered: discourse-oriented, evaluative, modal, negative, evidential, subject-oriented, negative, manner, etc. The functional adverbs class is somewhere in between the former two classes in terms of restrictive scope requirements and has to do mostly with time, negation, and frequency adverbs.

As for these categories, the important notion is that there are these scope ranges that explain where an adverb may appear within the clause and what may follow it based on a system of semantic requirements. Adverbs, therefore, can be positioned in all positions where their scope requirements are met and do not contradict semantically with other elements of the clause—e.g. auxiliary heads. I further analyze some of the major claims associated with Ernst's argument that I find applicable for justifying adverb positions in relation to verb movement in English.

As for the semantic properties of predicational adverbs, which are most relevant to this thesis, we can trace some of the subcategories of these adverbs back to the proposal by Jackendoff (1972), which states that predicational adverbs can be classified as manner, subject-oriented, and speaker-oriented. His theory claims "if

an adverb is attached to a constituent where the appropriate [semantic] rule cannot apply, it receives no interpretation and the sentence is ungrammatical" (in Ernst, 2002, p. 41). Jackendoff (1972) provides the foundation supporting Ernst's scope theory. An example of scope theory selection requirements is represented in (19) and (20).

(19) Boris obviously likes Natasha.

(20) Boris possibly likes Natasha.

(both adapted from Ernst, 2002, p. 42)

From these examples, the adverbs select for differing interpretations of the clause. Ernst (2002) claims that the adverb "*obviously* selects for a fact (a true proposition), while *POSSIBLY* selects for a proposition with no further requirement on its truth-value" (p. 42). Scope theory therefore emphasizes the semantic selection of what follows the adverb depending on the argument of the clause. Therefore, the adverb's semantic features alter the interpretation of the clause. Other approaches to scope theory are concerned more with the position of the adverb in relation to the auxiliary verb as a means for discussing stress, which I will now discuss.

3.3.4 Auxiliary Shift and Stress Reduction

Baker (1981) suggests that stress reduction accounts for the movement of the auxiliary—i.e. what he calls auxiliary shift (in Engels, 2012). Auxiliary shift is defined as the optional movement of "an *unstressed* auxiliary to the left of a wide scope adverb" (p. 235). In other words, when emphasis is not placed on the

auxiliary it has the option of moving higher than the wide scope adverb. I provide an example of this optionality in (21) and (22) as it were discussed in Engels (2012, p. 235). I have underlined the auxiliary when it is being stressed in (21).

(21) John **probably** <u>has</u> made many mistakes.

(22) John has **probably** made many mistakes.

(both adapted from Pollock 1997, p. 259)

Baker (1981) justifies this difference in ordering by assuming that Auxiliary Shift correlates with VP-ellipsis sites. Moreover, he claims, "if the auxiliary precedes a VP-ellipsis site…Stress Reduction is blocked and Auxiliary Shift, which only applies to stress-reduced auxiliaries, cannot move the auxiliary" (Engels, 2012, p. 235). I have restated his examples in (23) and (24) as mentioned in Engels (2012).

(23) Fred has never been rude to Grandfather, but John **always** has___.

(24) *Fred has never been rude to Grandfather, but John has **always___**.

(both originally from Baker, 1981, p. 309)

Here, Baker suggests that auxiliary verb movement is related to the connection between stress-reduced auxiliaries and VP-ellipsis sites and what is grammatically capable of preceding them. Ernst (2002) claims that Baker's approach is adverb specific and does not overtly provide support for movement, due to the fact that it is only really applicable to wide scope adverb types (in Engels, 2012). However, based on Cinque's functional hierarchy, we would expect to see the adverb *ALWAYS* much lower in the sentence. Perhaps then it is noteworthy to propose that stress does affect placement of adverbs in relation to auxiliary verbs in English. I will return to this discussion later in my analysis.

3.4 Conclusion

This chapter aimed to provide a basis of understanding in terms of the recent studies on verb movement and adverb placement. I return to the theories of Cinque (1999), Ernst (2002), Pollock (1989, 1997), etc. throughout the following chapters to support my analyses. Throughout Chapter two, it is argued how to best represent verb movement and adverb placement in generative syntax. I now question whether there is a more preferred adverb position—i.e. pre-verbal or post-verbal.

In discussing this issue, I aim to provide some evidence to suggest whether or not auxiliary movement in English is in fact occurring and what trends it appears to be following. In the following chapter, I focus on analyzing data from the Corpus of Contemporary American English (COCA) in order to begin to analyze the issues that have been debated above.

Chapter 4

CORPUS ANALYSIS: ADVERBS

4.1 Introduction

I now turn my focus to the TP layer specifically in order to examine the issues presented above on word order in terms of TP adverb placement and finite auxiliary movement. The aim here is to analyze the data results from COCA in order to draw conclusions and further the discussion on auxiliary verb movement. Moreover, I attempt to uncover any frequency trends in auxiliary-adverb order based on the theories presented in Chapter 3, i.e. Cinque (1999), Pollock (1997; 1989), Ernst (2002), etc. In doing so, I hope to explain where the T-head position would be in the clause structure, and whether or not speakers of English prefer the TP adverbs in pre- or post-auxiliary positions.

This chapter is organized into sections by the TP adverb being analyzed. First, I reiterate the methodological approach to this research and discuss the corpus being analyzed. Section 4.2 discusses these adverbs in relation to all the forms of auxiliary verb *HAVE*. Following this analysis, section 4.3 explores the same adverbs while focusing on all the finite forms of auxiliary verb *BE.* In section 4.4, I analyze the statistical data collectively, and I provide my preferred representation of adverb positioning based on the Butler (2003) and van Gelderen (2013) model in section 4.5.

4.1.1 Corpus Information and Methodology

The data results in this chapter are all from COCA's spoken register. This corpus contains unscripted TV and radio program conversations—i.e. approximately 109 million words. By analyzing this data, I attempt to illustrate American English speakers' frequency of auxiliary movement to T in collocation with TP adverbs.

As for the adverbs, I have selected *PROBABLY, POSSIBLY,* and *ALWAYS*, which are in different levels of the TP-layer according to Cinque's hierarchy. I hypothesize that auxiliary to T movement would be more frequent above lower adverbs, such as *ALWAYS,* and less frequent above adverbs that are projected higher in the TP-layer, such as *PROBABLY* and *POSSIBLY.*

In COCA, I filtered the results to only include those relevant to this thesis. For example, when searching for auxiliary movement to T above the adverb *PROBABLY*, I entered "probably has [v?n*]" or, in other words, an "adverb" + "auxiliary" + "a past participle". I used this search query with a past participle, in order to ensure that I was analyzing the auxiliary *HAVE* and not the lexical verb. Then, I altered the auxiliary-adverb order as well as the adverb and auxiliary themselves in order to obtain all of my results; however, with auxiliary *BE,* I replaced the past participle with the present participle (-ing)—i.e. [_v?g*].

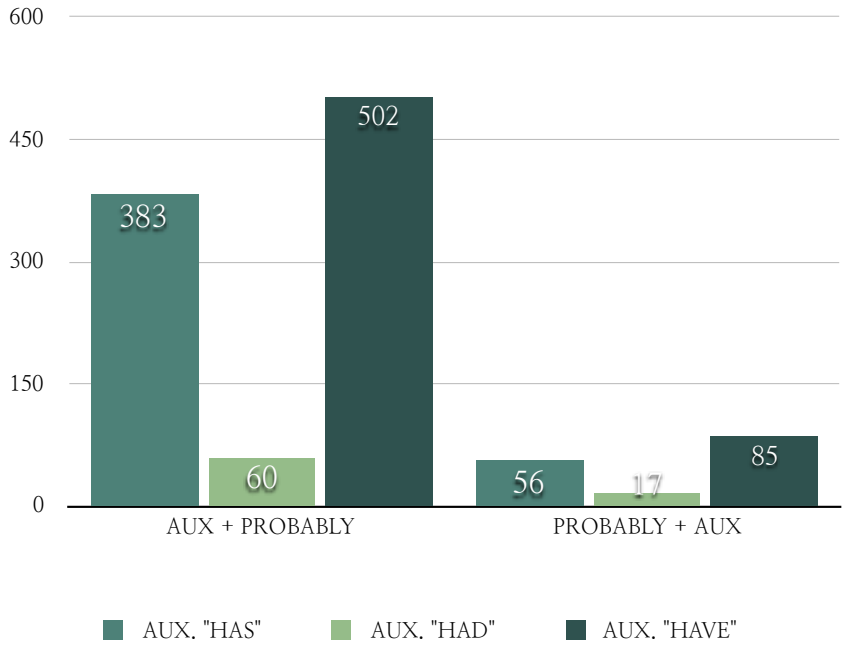
In the subsequent sections, the figures represent the number of occurrences where the auxiliary either exhibits movement to the T or remains in a lower head position.

4.2 TP Adverb Positions and Auxiliary "*HAVE*"

4.2.1 PROBABLY

Based on Cinque's (1999) functional hierarchy, the adverb *PROBABLY* occurs at the highest projection of the TP adverbs and is also categorized as a Mod-epistemic adverb (p. 106). By analyzing the collocation of the adverb with the inflected auxiliary, i.e. *has, had, have,* I attempt to reveal any frequency trends in grammaticality of this collocation using the Corpus of Contemporary American English (COCA). The corpus results, expressed in Figure 4.1, uncover that in all of the spoken registers in COCA the adverb *PROBABLY* was more frequently found to follow the finite auxiliary forms of *HAVE*. All contracted forms of the auxiliaries—e.g. *'s*, *'d*, *'ve*—are included in each column.

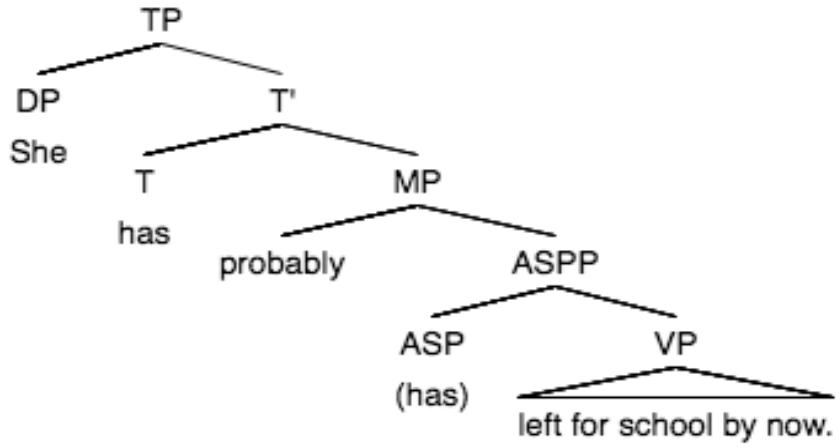
Figure 4.1: Frequency of Auxiliary *HAVE* with Adverb *PROBABLY*



It seems favorable to suggest that the preference for having the auxiliary precede the adverb alludes to some form of auxiliary movement still present in Modern English. The auxiliary *have* exhibited a greater number of occurrences where it presumably remained lower in the clause. We could question whether this has something to do with inflection here, as well. That is to say that this auxiliary form is not overtly inflected and tends to want to remain in a lower head position than the adverb—i.e. no verb movement to the T-head. It could also be that this auxiliary form is simply represented more often in the COCA database.

In (1), I have reiterated the process by indicating the inflected auxiliary *has* originates in an aspect (ASP) phrase head and is then moved to the T-head position.

(1)



We can begin to presume from the corpus results that English speakers prefer auxiliaries to be higher than the adverb *PROBABLY*, which Cinque (1999) claims sits in the highest projection. As mentioned in Williams (1994), variation occurs from head movement, specifically auxiliary movement to the T-head, if

adverbs are in fact base-generated in the specifier positions (in Lightfoot and Hornstein, 1994). Thus, this favorability for adverbs in post-auxiliary positions gives some support to the idea of auxiliary verbs, such as *HAVE*, in Modern English are still moving to the T-head.

4.2.2 POSSIBLY

Moving down Cinque's hierarchy, I analyze the adverb *POSSIBLY* in collocation with the same auxiliary forms of *HAVE*. Cinque (1999) categorizes this adverb conveniently as a Mod-possibility (p. 106). He also ranks *POSSIBLY* sixth in the list of TP adverbs; therefore, we would expect it to appear slightly lower in the clause structure than *PROBABLY*, and therefore, the finite auxiliaries would have moved higher more frequently than with *PROBABLY.*

Upon analyzing the results from COCA, it becomes apparent that this adverb does not occur with a finite auxiliary form of auxiliary *HAVE* as often as with *PROBABLY*. There were only 24 spoken results total with auxiliary *HAVE. However*, *POSSIBLY* did appear more frequently when there was a finite modal auxiliary—e.g. *CAN*, *COULD*, *COULD NOT* (*N'T*), and *MIGHT*. This may also provide evidence that modals move to the T-head. As for the analysis of *HAVE* though, there is little to no evidence to support auxiliary verb movement. However, the results did provide some examples of *POSSIBLY* being projected lower in the clause. In (2), I show how Cinque's functional hierarchy, to some extent, may be supported.

(2) She could've possibly had…

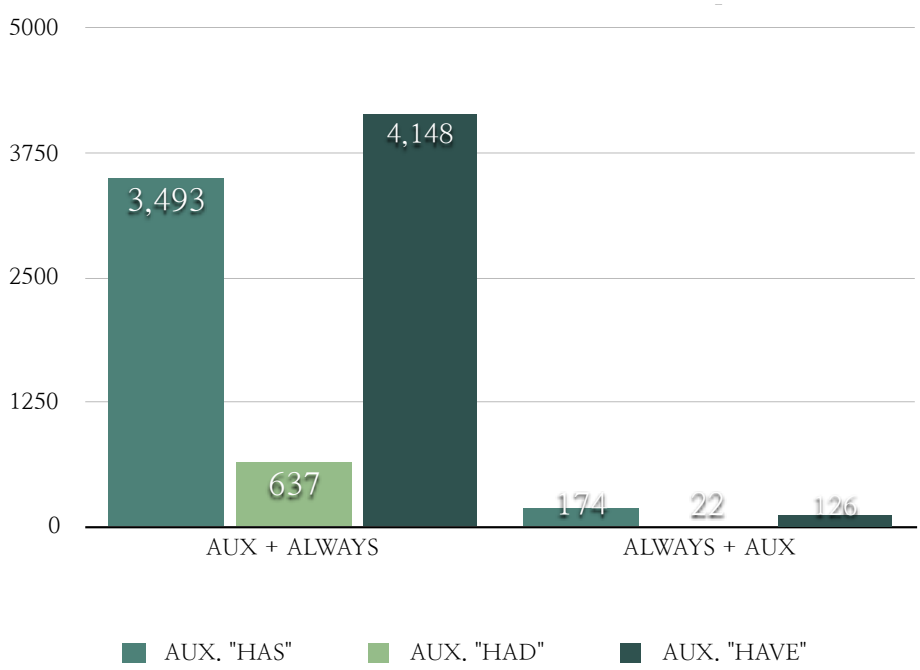
(COCA_SPOK:ABC)

I mention this example to show favorability for *POSSIBLY* to be base generated lower in the clause. Here, both the finite auxiliary and a present perfect form of *HAVE* are both represented above the adverb. This example then suggests that *POSSIBLY* does prefer to remain in a lower position with both the modal auxiliary *COULD* and the non-finite auxiliary *HAVE* moved to a higher position. We could question whether this has something to do with the reduced form of *HAVE* attaching to the modal and then moving to the T-head position as one constituent. I will leave this idea alone for now; however, this idea of cliticizing reduced forms of functional elements onto the finite verb will be briefly discussed in Chapter 5.

4.2.3 ALWAYS

Cinque (1999) positions the adverb *ALWAYS* quite low within the TP adverbs and categorizes it as ASP-perfect. Therefore, we should expect for English speakers to favor this adverb in the post-auxiliary position. Aspectual layers appear lower than both the Mood and Modal layers represented above. In other words, *ALWAYS* should remain low in the clause structure.

Figure 4.2: Frequency of Auxiliary *HAVE* with Adverb *ALWAYS*



Clearly, the results from COCA for this collocation, shown in Figure 4.2, sufficiently support our assumption based on the relative order of Cinque's functional hierarchy. If we consider the adverb *ALWAYS* to be in the specifier of the aspect phrase, then clearly the auxiliary head is moving to another head in a higher position—i.e. the T-head.

Along with *ALWAYS,* the COCA results for *ALREADY* express a similar favorability for post-auxiliary adverb positions—i.e. 350 results of "*has* + *ALREADY*" to 9 results of "*ALREADY* + *has*". Interestingly, Cinque (1999) projects *ALREADY* to be higher than *ALWAYS* in the clause; however, in COCA, there was only one occurrence of these adverbs in this order, and there were 110 results for "*ALWAYS ALREADY*". Considering cases where multiple adverbs in appear together in the TP layer is limited, it is likely that semantic features come into play for these specific

occurrences. In other words, some adverbs, such as *ALWAYS,* sometimes have a wide-scope reading and actually prefer to be higher in the clause. According to Cinque (1999), though, *ALWAYS* should project lower than *ALREADY.*

Another observation about Cinque's functional hierarchy is that he projects *QUICKLY* higher than both *ALREADY* and *ALWAYS*. To me, *QUICKLY* should be much closer to the verb, due to the fact that it is modifying the manner in which the verb being accomplished. Haumann (2007) argues for different functional categories than those of Cinque, in terms of the VP layer. In her analysis, she has a Manner phrase which accounts for adverbs, such as *LOUDLY* (in her example, Haumann, 2007, p. 403). I would align *QUICKLY* with *LOUDLY* and say that these adverbs seem to project lower in the clause in order to be closer to the main verb that they are modifying.

Evidently, in both of these instances, we cannot rely on the rigid hierarchy that Cinque (1999) presents; however, the idea that there are larger "zones" for adverb placement seems more favorable. Now, I would like to shift my focus to the auxiliary verb *BE* in order to uncover similar trends associated with adverb positions and this rather inflected auxiliary verb.

4.3 TP Adverb Positions and Auxiliary *"BE"*

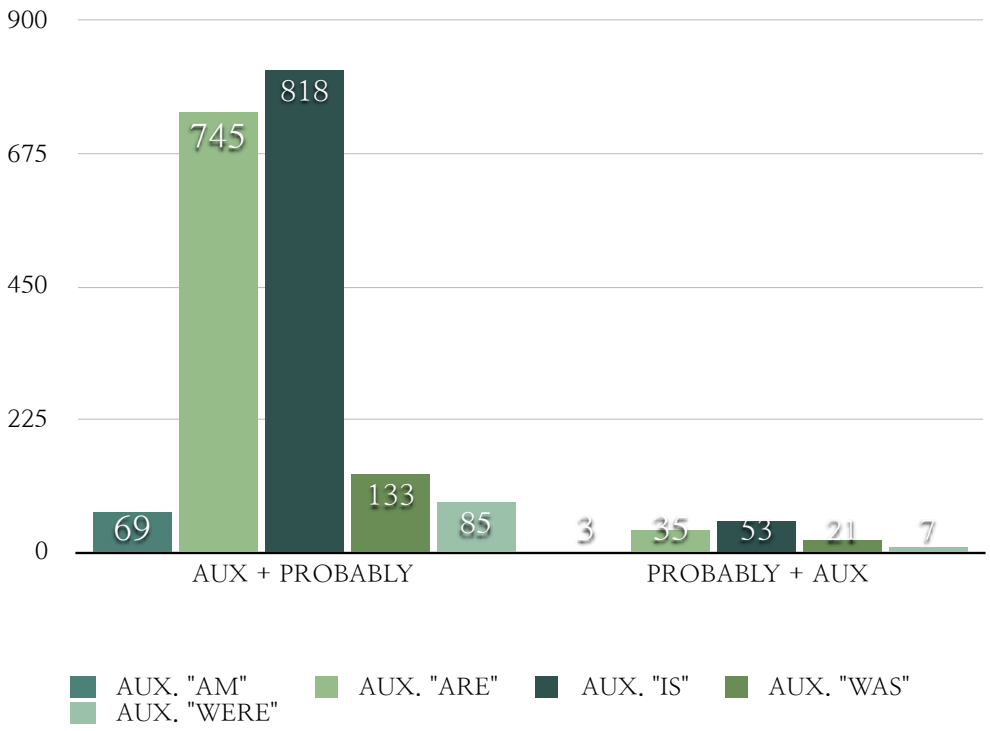
4.3.1 PROBABLY

In terms of inflection, the auxiliary *BE* has five different forms in relation to the grammatical persons—i.e. *am, are, is, was, were.* In other words, if richness of morphology and inflection are still factors in verb movement to a higher position in

English, we should expect English speakers to favor the auxiliary verb *BE* to move higher than the TP adverbs.

In Figure 4.3, the adverb *PROBABLY* more frequently follows the finite auxiliary forms of *BE*. Since all of the finite auxiliary forms of *BE* are still quite inflected in Modern English, the notion that overt morphological inflection correlates with verb movement to a higher position is quite apparent in the following figure. This figure also includes all contracted forms of each auxiliary.

Figure 4.3: Frequency of Auxiliary *BE* with Adverb *PROBABLY*



These similar trends to auxiliary *HAVE* seem to be occurring amongst the different forms of the finite auxiliary. The auxiliary *is* shows the greatest number of

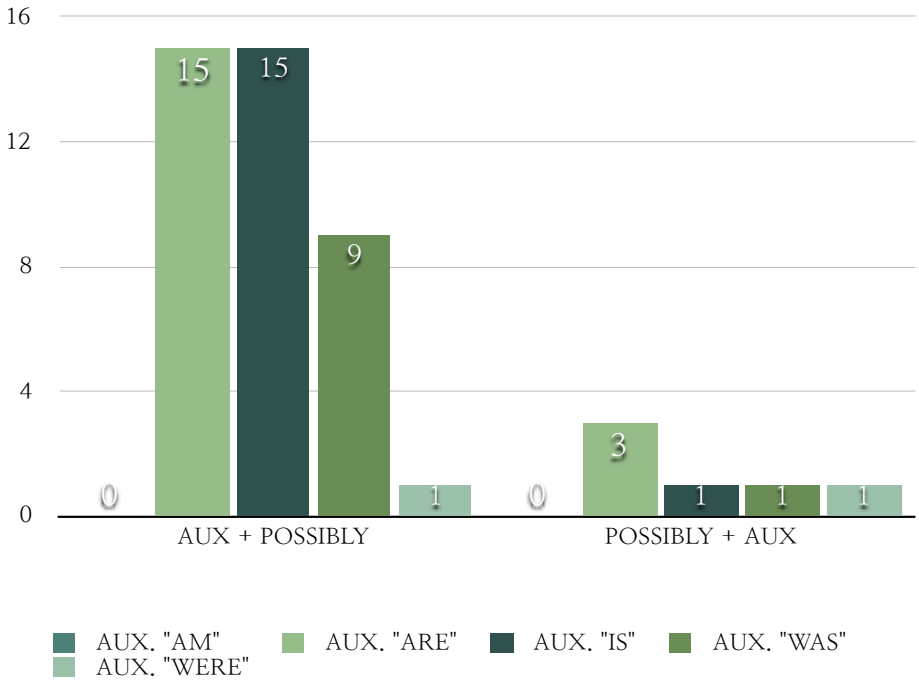
examples from all of the spoken registers, along with *are*, which appears most frequently—i.e. 2nd person singular, and all plural forms of the verb.

Evidently, English speakers prefer the finite auxiliary forms of *BE* to move to a higher position, even more so than with auxiliary *HAVE*. Being the most inflected verb to survive into Modern English, it seems reasonable to presume that overt morphological inflection does pertain to auxiliary verb movement in English, based on the favorability trends by English speakers. I would also assume that the ability to attach contracted verb forms to the subject illustrates another reason why English speakers prefer to move this auxiliary in front of all of the TP adverbs.

4.3.2 POSSIBLY

In section 4.2.2, I discuss how the COCA results for *POSSIBLY* with a finite auxiliary form of *HAVE* rarely occurring, unless there was a finite modal auxiliary in the clause. In Figure 4.4 below, it appears that the auxiliary *BE* does render some results with this adverb; however, there are only 46 total for this auxiliary, which is rather low in comparison to the results with *PROBABLY*

Figure 4.4: Frequency of Auxiliary *BE* with Adverb *POSSIBLY*



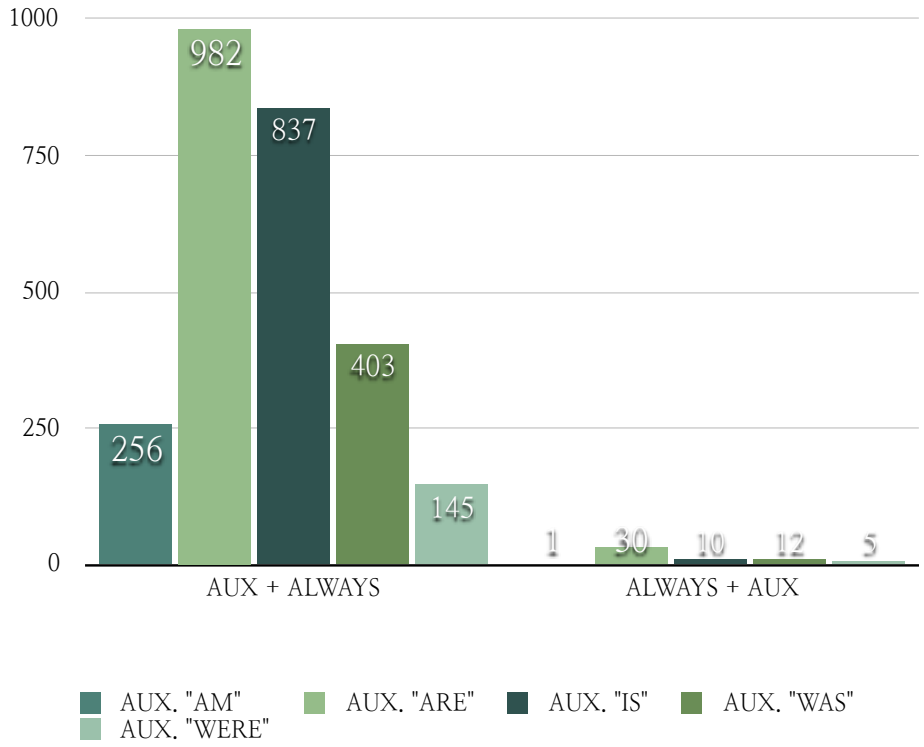
Understandably, we would not have any case where a modal auxiliary was the finite auxiliary in the search results because none of the inflected forms of *BE* are the same as the infinitive form, contrary to auxiliary *HAVE*. There are still not as many examples of auxiliaries *HAVE* and *BE* to suggest that *POSSIBLY* is sitting lower in the clause. However, auxiliary *BE* does show that there is some preference for it to be in the T-head position, according to Figure 4.4.

4.3.3 ALWAYS

As mentioned in previous sections, Cinque (1999) ranks the adverb *ALWAYS* rather low in his hierarchy of TP adverbs; therefore, as we saw in section 4.2.3, we should also expect the adverb *ALWAYS* to be sitting in a post-auxiliary position with the auxiliary *BE* in order to remain lower in the clause structure.

The results of all spoken registers in Figure 4.5 further support our assumption based on Cinque's functional hierarchy.

Figure 4.5: Frequency of Auxiliary *BE* with Adverb *ALWAYS*



Not only are we able to justify auxiliary verb movement to a higher position, but these results provide some evidence of a functional order based on the different TP layers—i.e. Tense, Mood, and Aspect—where *ALWAYS* would generally be categorized as an aspect adverb in SpecASPP. This categorization is supported by Cinque (1999), as well.

4.4 Statistical Analysis of Auxiliary Movement

In order to collectively illustrate the favorability results expressed in Figures 4.1- 4.5, I have compiled the following tables. Each table's column provides the

number of occurrences where the auxiliary listed moved to T followed by the total number of all occurrences directly below. The percentage of times the auxiliary appeared to move is represented in a separate row.

Table 4.1: Auxiliary *HAVE* Higher

AUX. "HAVE"	HAS	HAD	HAVE	TOTAL
PROBABLY	383 -------- 439	60 -------- 77	502 -------- 587	945 -------- 1,103
% AUX. HIGHER	87.2%	77.9%	85.5%	85.6%
ALWAYS	3493 -------- 3667	637 -------- 659	4148 -------- 4274	8278 -------- 8600
% AUX. HIGHER	95.2%	96.6%	97%	96.2%

This table illustrates that the adverb *ALWAYS* is consistently base generated lower in the TP layer than the adverb *PROBABLY*. By looking at the auxiliary *has*, which is the most inflected form of the verb, we can see that it also shows the highest percentage of movement to the T-head along with auxiliary *have* following a similar trend of frequency, which I mentioned in section 4.1.1.

Table 4.2: Auxiliary *BE* Higher

AUX. "BE"	AM	ARE	IS	WAS	WERE	TOTAL
PROBABLY	69 / 72	745 / 780	818 / 871	133 / 154	85 / 92	1850 / 1969
% AUX. HIGHER	95.8%	95.5%	93.9%	86.3%	92.3%	93.9%
POSSIBLY	0 / 0	15 / 18	15 / 16	9 / 10	1 / 2	40 / 46
% AUX. HIGHER	0%	83.3%	93.8%	90%	50%	86.9%
ALWAYS	256 / 257	982 / 1012	837 / 847	403 / 415	145 / 150	2623 / 2681
% AUX. HIGHER	99.6%	97%	98.8%	97.1%	96.6%	97.8%

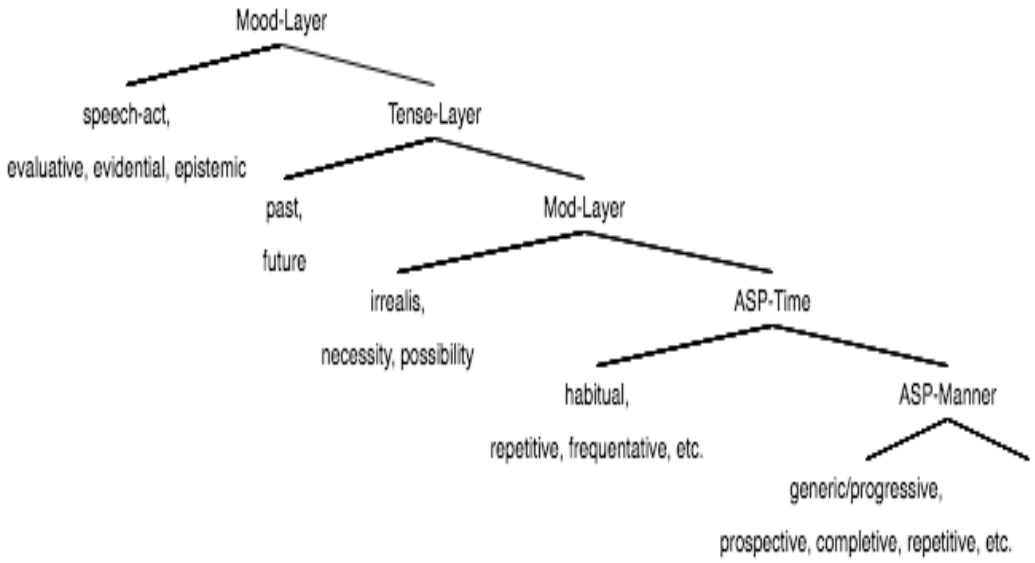
As for the auxiliary *BE*, all of the inflected forms moved to the T-head above the adverb *PROBABLY* at a higher percentage than auxiliary *HAVE*. The adverb *ALWAYS* exhibited the same trend with auxiliary *BE* as we saw with auxiliary *HAVE.* When analyzing the adverb *POSSIBLY*, there were not that many examples from the data in comparison to the other two adverbs; however, with auxiliary *BE,* there were 40 occurrences of movement out of 46 total examples from the data, which still supports the favorability trends.

4.5 A Minimalist Hierarchy of Adverbs

As discussed in sections 4.1 and 4.2, Cinque's (1999) cartographic emphasis on where these adverbs are positioned in the clause becomes too restricted. I agree with the minimalist nature of Butler's (2003) representation of the clause structure

in that the TP is broken into larger categories (i.e. Tense, Mood, and Aspect). I have reiterated the structure van Gelderen (2013: 125) suggests in (3).

(3)



The structure in (3) provides a position related to a specific category where an adverb that meets the requirements (i.e. habitual, epistemic, repetitive, etc.) can be projected. Rather than positioning every adverb in a rigid hierarchical order, this structure allows for adverbs to be grouped together based on their grammatical role, i.e. Tense, Mood, and Aspect. Van Gelderen (2013) shows that adverbs are more "zone-sensitive" than strictly ordered in the clause (p. 126). Based on the results from this chapter and the issues presented about the rather strict functional hierarchy of some adverbs—i.e. *QUICKLY, ALREADY,* and *ALWAYS*—I also agree that there should be broader areas where adverbs are projected.

4.6 Conclusion

Throughout Chapter 4, I presented the corpus data results, which support my hypothesis concerning the relative order of adverbs in the TP layer, and provide evidence of auxiliary verb movement to T in Modern English. In the following chapter, I turn my focus to other functional elements of the TP layer in order to continue the discussion of auxiliary verb movement to the T.

CHAPTER 5

CORPUS ANALYSIS: NEGATION AND FLOATING QUANTIFIERS

5.1 Introduction

In the previous chapter, I examined the position of adverbs in relation to the auxiliary head in order to support the hypothesis of auxiliary verb movement to the T-head. This chapter attempts to provide further evidence for auxiliary verb movement by discussing other functional elements of the TP layer—i.e. negation and floating quantifiers. In Section 5.1, I discuss the location of negation phrases in the clause, while discussing the interaction of negation and adverb placement. I continue with floating quantifiers in Section 5.2. I attempt to provide a synthesis in Section 5.3 by beginning to construct a minimalist tree that is capable of providing evidence of auxiliary verb movement in relation to other functional elements of the TP layer.

5.2 Negation

As mentioned in Chapter 3, finite main verbs and finite auxiliary verbs differ in terms of movement in Modern English—i.e. finite auxiliary heads move above adverbs. Engels (2012) states that although adverbs can be in pre-auxiliary position it is usually a marked occurrence. In other words, the lack of auxiliary movement to a higher position is likely due to the influence of an outlying factor beyond the syntax—e.g. Baker's (1981) rule on auxiliary stress. By adding negation into the TP layer, I present some of the other constructions that interact with auxiliary verb movement.

Placing an adverb in the pre-auxiliary position is optional; however, when an adverb has a wide scope reading, it is obligated to precede the finite auxiliary in certain constructions, such as VP-ellipsis sites—i.e. (21) and (22) in section 3.3.4 of Chapter 3—and "in negated clauses where the negation marker *n't* is cliticized onto the auxiliary" as in (1) below (Engels, 2012, p. 50).

(1) a. John probably hasn't made many mistakes.

b. *John hasn't probably made many mistakes.

Since the epistemic adverb *PROBABLY* in (1b) has a wide scope reading, it is ungrammatical for the auxiliary to move with the *n't* cliticized to the T head position. In (21) and (22) of Chapter 3, which are the same examples as in (1) of this chapter without the negation, we saw that pre- or post-auxiliary adverb placement was grammatical; however, now that the clause is negated, the wide-scope adverb is interfering in some manner.

Engels (2012) states that epistemic adverbs, such as *PROBABLY*, are obligated to precede finite auxiliaries with negation marker *n't* cliticized to remain grammatical. In other words, it seems the construction of the auxiliary with the negation marker is too complex in order to move above a wide scope adverb. Therefore, if the adverb appears after the negation marker and auxiliary, the adverb must have a narrow scope reading. Any alteration therefore creates a different semantic interpretation, which I present in (2).

(2) a. The speaker hasn't intentionally strayed off topic.

(The speaker has strayed off topic but did not mean to do so.)

b. The speaker intentionally hasn't strayed off topic.

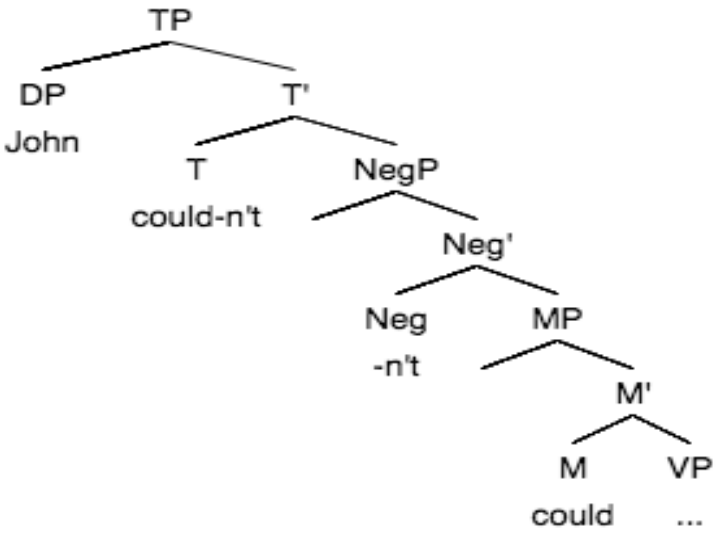
(The speaker made an effort not to stray off topic and was successful.)

The sentences in (2) raise the question of where the auxiliary *has* originates in the clause. Due to the fact that the *n't* is cliticized to the auxiliary, it would then have to be lower than the negation phrase (NegP), which many assume then to be under the TP layer in English, in order to attach itself to the reduced negation (van Gelderen, 2013). In other words, the auxiliary *has* must originate in a lower head in order to move to the NegP and attach to the negation marker *n't*; therefore, it is assumed that the English NegP is directly below the T.

However, as we might expect, Cinque (1999) claims that negation is capable of being realized in multiple positions throughout the clause, as well as appearing simultaneously. He mentions Zanuttini's (1997) study that provides evidence for four positions for negation in Romance languages. Cinque (1999) assumes then that NegP(s) are not "structurally present" if they are not being overtly realized; however, he claims that there is a "possibility of generating a NegP on top of every adverb-related functional projection, even simultaneously, up to a certain height" (p. 126). He presumes the reason we are unable to implement that many NegP(s) would be due to "processing difficulties" (Cinque, 1999, p. 126). So, based on both Zanuttini's (1997) and Cinque's (1999) study on negation phrases, languages could be viewed as capable of generating NegPs in different positions throughout the clause. This perspective is again too free in terms of word order and does not provide us with a lot of evidence for movement.

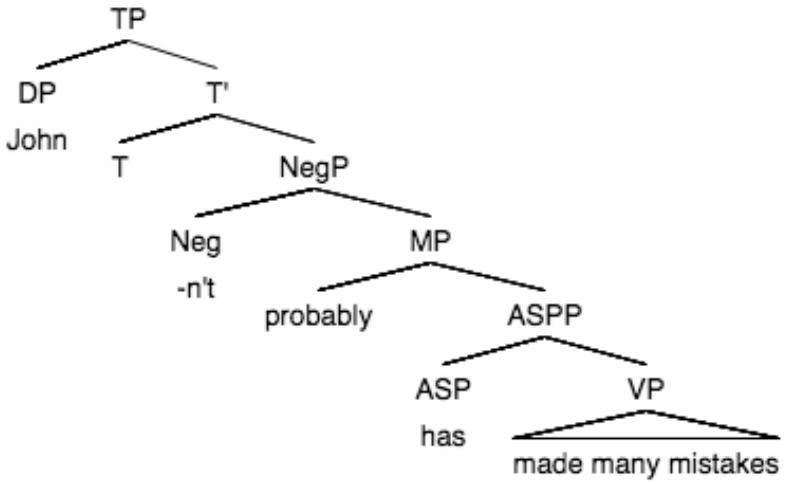
Keeping with the minimalist angle, van Gelderen (2013) shows how negation is able to be present in the CP, TP, and VP in varying ways. The TP layer contains the NegP where the head is either *not* or *n't* and the specifier would be a negative adverb, such as *never.* She states that the *not* or *n't* is "an independent head that needs a lower head to move to it on its way to T" (p. 196). Therefore, as in (3), the NegP must sit directly below the T-head in order for auxiliaries to pick the negation head up during the movement process. I have illustrated where the auxiliary verb and the Neg-head originate and have shown them as one constituent in the T head position, which suggests the notion of auxiliary verb movement to T.

(3)



In discussion of the sentences in (1), where we have an adverb, it becomes clear that we need to reanalyze the order of the phrasal positions for negated clauses within the TP layer. I have drawn tree (4) to illustrate this issue.

(4) John probably hasn't made many mistakes.



In order for the finite auxiliary *has* to move to the *n't* clitic in the NegP, which has been assumed to be directly below the T-head, the auxiliary would need to move above the adverb *PROBABLY*. This result would render an ungrammatical sentence according to Engels' (2012) aforementioned discussion on negation and epistemic adverbs. I now turn to COCA to see how English speakers' tend to account for these issues.

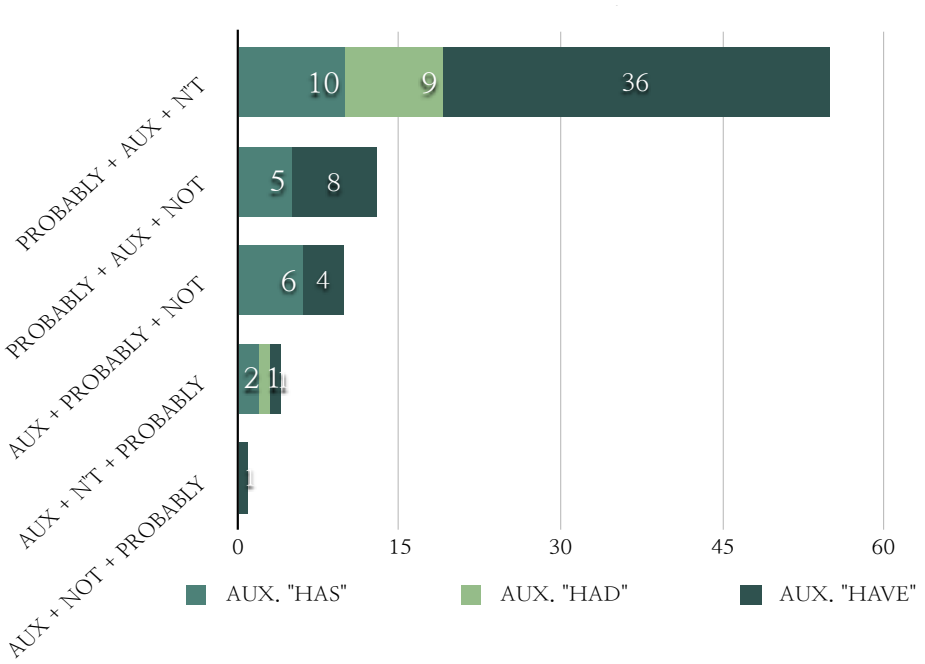
I hypothesize that speakers are aware of this grammaticality constraint and will not move the auxiliary to T above an adverb, such as *PROBABLY*, when the clause is negated. However, with the adverb *ALWAYS*, we should expect that auxiliary movement to T is more frequent. Therefore, by examining an adverb projected higher, i.e. *PROBABLY* and lower, i.e. *ALWAYS* in the TP, I posit that the NegP is sitting between these two adverb specifier "zones," and movement constraints are affected. In the subsequent sections, the figures represent the number of occurrences where both the auxiliary and negation remain below the

selected adverb, the auxiliary exhibits movement to the T while the negation remains below the adverb, or both the auxiliary and negation exhibit movement to T as one constituent.

5.2.1 Auxiliary Movement with Negation and Adverb PROBABLY

In Figure 5.1 below, I display the results from COCA in terms of the interaction between the auxiliary *HAVE*, a negation marker *not/n't*, and the adverb *PROBABLY*. I have included in the data the contracted forms of the auxiliary when applicable. For example, if the form *HAVE* can be contracted, the results will include both the contracted and full forms of the auxiliary together.

Figure 5.1: Auxiliary *HAVE*, Negation, and Adverb *PROBABLY*



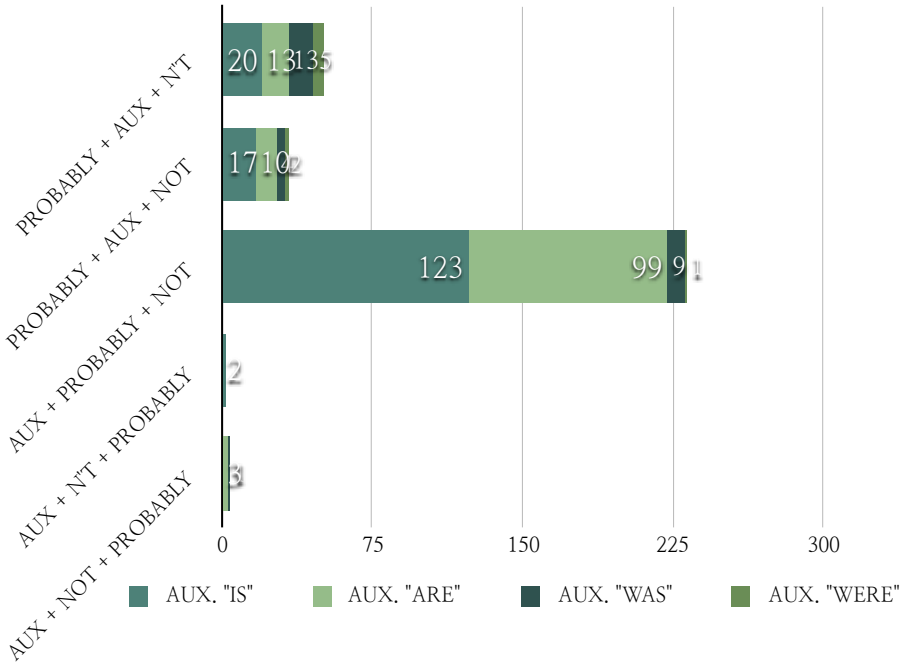
In Figure 5.1, it is clear that English speakers prefer keeping the auxiliary below the adverb *PROBABLY*, especially when the auxiliary *has* moved to the *n't*

clitic to form one constituent. When the negation marker is not contracted, we see relatively similar results regarding the movement of the auxiliary above the adverb. The auxiliary and negation marker moving above the adverb rarely ever occurs, which supports the discussion above.

Therefore, the results suggest that positioning the NegP directly below the T-head cannot always work. In (4), we would need to switch the NegP and the MP so the auxiliary could reach the negation marker without moving above the epistemic adverb *PROBABLY.*

In Figure 5.2 below, I explore whether there are similar trends occurring with the auxiliary *BE*. I have also included the contracted forms of the auxiliary in the data when applicable.

Figure 5.2: Auxiliary *BE*, Negation, and Adverb *PROBABLY*



The grammaticality of the placement of the auxiliary, adverb, and negation continues to support the claims by Engels (2012) and align with the results from Figure 5.1 with auxiliary *HAVE.* According to the data shown in Figure 5.2, English speakers are more concerned with the contraction of the auxiliary—i.e. *'re* and *'s*—especially when the negation marker is in its full form. Clearly, the negation marker is positioned below the adverb *PROBABLY*. I now turn to the adverb *ALWAYS* to continue discussing the location of the NegP.

5.2.2 Auxiliary Movement with Negation and Adverb ALWAYS

As I have mentioned, another reason for the movement constraint could be the interpretation of the scope reading with the epistemic adverb. In fact, if we use the adverb to *ALWAYS*, which is an aspect adverb, the results from COCA suggest that the adverb must sit in the specifier of the ASPP, and therefore, the NegP is positioned directly above the ASPP. Figures 5.3 and 5.4 illustrate these claims with the auxiliary *HAVE* and *BE*.

Figure 5.3: Auxiliary *HAVE,* Negation, and Adverb *ALWAYS*

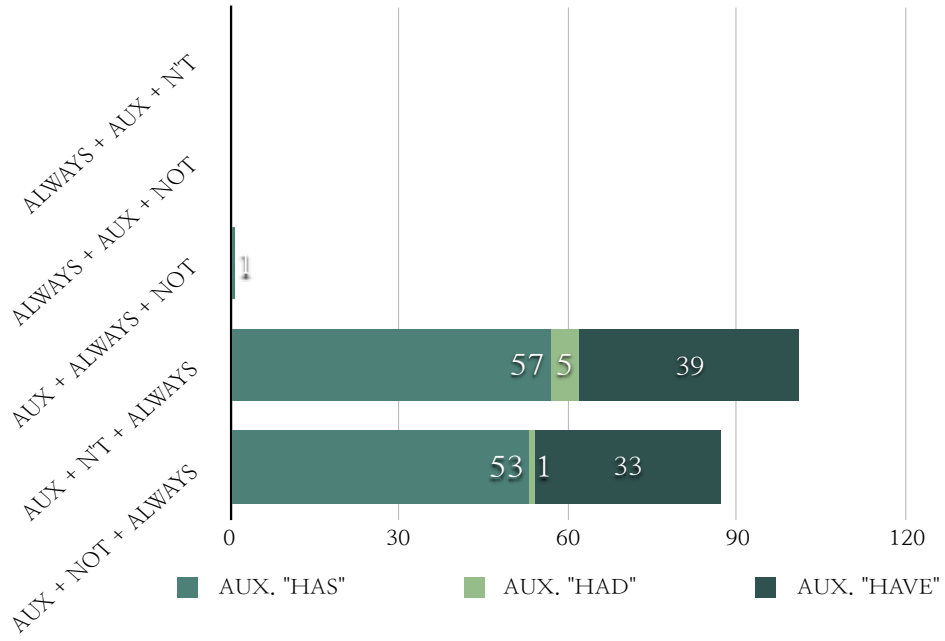
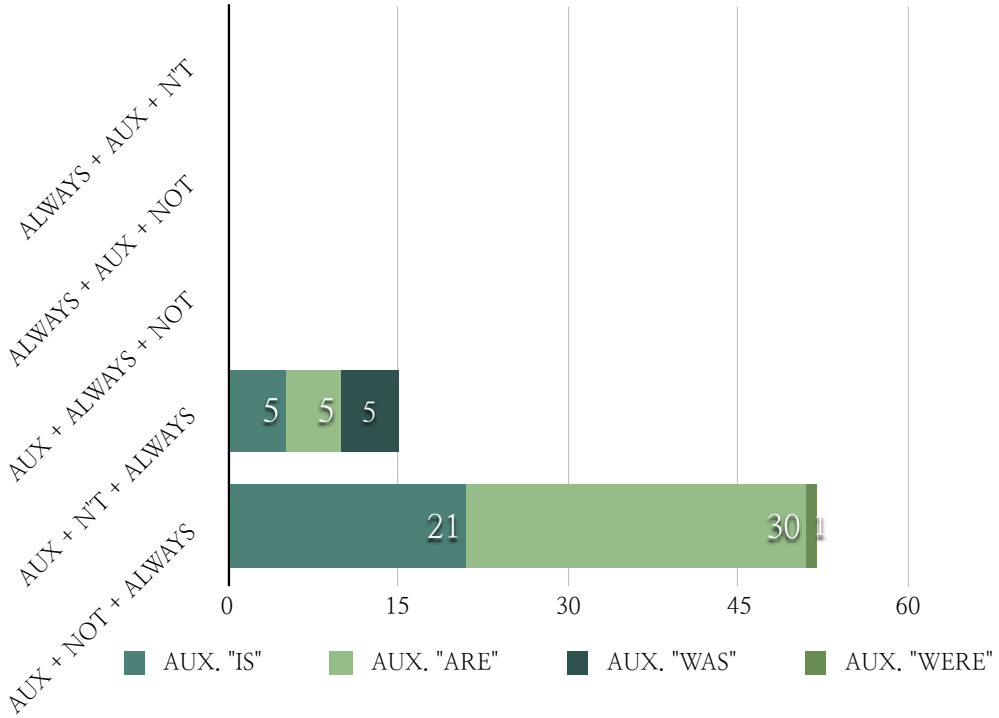


Figure 5.4: Auxiliary *BE,* Negation, and Adverb *ALWAYS*



As for Figures 5.1 and 5.2, the epistemic adverb *PROBABLY* seemed to prevent movement of the complex auxiliary and negation constituent; however, in Figures 5.3 and 5.4, the movement of the auxiliary to the negation always occurred. English speakers are aware of this grammaticality issue and movement constraint; therefore I suggest that the NegP is actually positioned directly below the MP, when it is realized.

In section 3.3.4 and above in this chapter, I mention that Baker (1981) suggests finite unstressed auxiliaries precede an adverb, whereas stressed auxiliaries follow the adverb. This rule then claims that stressed auxiliaries do not exhibit movement; however, it is in fact necessary in negative inversion constructions. Engels (2012: 50) presents examples of this construction, which I have reinstated in (5).

(5) a. Not only DID he go to school, he wanted to as well.

b. Not only CAN I sing, I'm going to tonight.

Engels (2012) claims then that Baker's "Auxiliary Shift" would need to account for the movement of a stressed auxiliary by means of an additional rule. I question whether or not this variation in Baker's rule arises due to the negation element in this specific construction. I will leave this idea alone for now since such inversion as in (5) would move the discussion into the CP layer and issues outside the scope of this thesis.

I mention Baker's analysis here to highlight the fact that, when negation is involved in the clause, movement constraints tend to be affected in some way, as exhibited by Figures 6-9 above. Cinque's (1999) notion of negation being generated

in multiple positions throughout the TP layer is slightly more appealing; however, the word order then becomes to free. I will leave this idea alone and assume that NegP is directly above the ASPP and below the MP in the TP-layer.

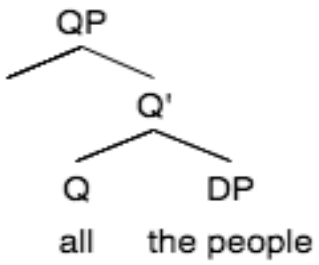
In this section, I presented analyses of negation phrases within the TP layer in order to continue the discussion of auxiliary verb movement to the T-head. Clearly, English speakers are aware of these movement constraints with negated clauses; however, I leave issues concerning the position of the NegP in the TP for future research. Now, I continue the discussion of the clause structure by incorporating another important element within the TP.

5.3 Floating Quantifiers

Now, I present the issues surrounding a rather unique phrase in the clause structure of Modern English—i.e. the Quantifier Phrase (QP)[12]. The QP is a "DP-related projection" that exhibits a sort of movement, where the DP moves to SpecQP and up the clause (if it is a subject) leaving the Q head, e.g. *all,* behind (Cinque, 1999, p. 116). In (6), I show the original QP phrase structure, which would be sitting in the Spec of VP, before the DP moves out and leaves the quantifier.

[12] Throughout my analysis, I refer to floating quantifiers as QPs in terms of the remaining Q-head after the DP complement has moved out of the phrase to the SpecTP. I have chosen to use the label QP rather than FQ to emphasize that the quantifier is a part of a larger phrase as it moves up the TP-layer, rather than simply a head. However, when referring to the discussion in the prior literature, I use the original abbreviation (FQ) if it is written this way in their analyses.

(6)



Originally thought to be "floating" to the right to various positions in the TP layer, the quantifier is now viewed as being "stranded" in the QP as the DP moves up to SpecTP (van Gelderen, 2013, p. 14). This idea provides support for the VP-internal subject hypothesis and allows us to see where exactly the QP originates. However, because the quantifier can also move up in the TP layer, the main issue here is where all of these TP elements—i.e. adverbs, auxiliaries, negation, and quantifiers—are capable of landing in a minimalist tree structure.

Since Kayne (1975) and Pollock (1989), the comparison between floating quantifiers (FQs) and adverb positions in the TP layer has been analyzed. Bobaljik (2001) states that FQs occupy adverb positions due to the fact that in Modern English we can say sentences, as in (7), where the FQ can be positioned throughout the other TP layer elements.

(7) The dogs {all} would {all} have {all} been {all} chasing the cats.

Bobaljik (2001) draws the connection to adverb placement by comparing it to examples from Pollock (1989), which I have restated in (8).

(8) a. My friends all/probably will leave.

b. *Les enfants tous/bientôt vont partir. (Pollock, 1989, p. 368)

In (8a), it is clear that English allows for the floating quantifier to be between the subject DP and the finite auxiliary verb (as is acceptable, yet somewhat marked, with adverbs). French, however, prevents an adverb or FQ to be between the subject DP and the finite auxiliary verb, as in (8b). Therefore, as Pollock (1989) and Bobaljik (2001) suggest, floating quantifiers must be positioned in the same sites as adverbs.

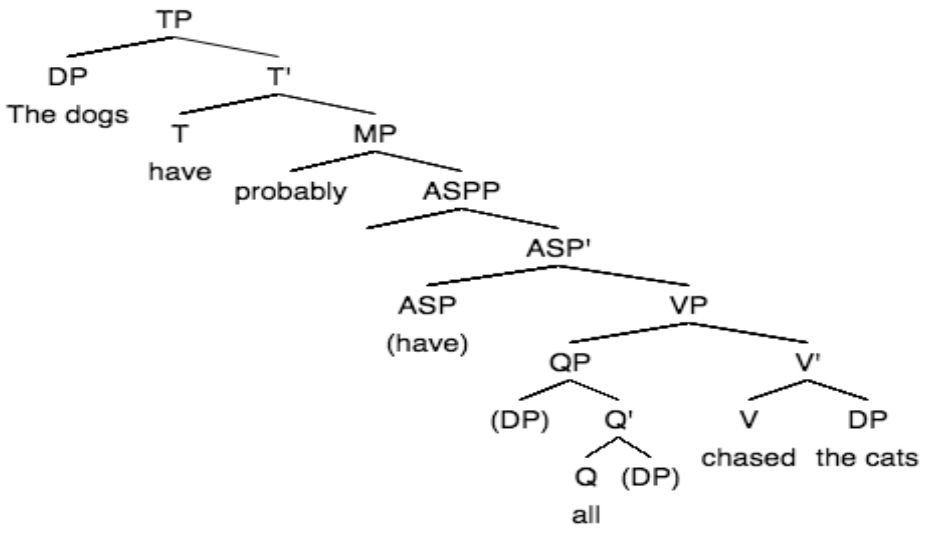
Since Shlonksy (1991), it has been argued that the quantifier is a head with its complement being the DP that leaves the quantifier stranded after moving to a higher position. However, Pollock (1989) and Bobaljik (2001) both claim that FQs move to the same sites as adverbs—i.e. specifier positions. If that is the case, we cannot extract the quantifier head and move it to a specifier position; therefore, it seems favorable to suggest that the QP itself is undergoing some form of 'remnant' movement. In other words, after the DP is extracted from the QP and moved to SpecTP, the Q-head must remain in the QP and move as one from the SpecVP in order to land in the various specifiers in the TP layer.

Referring back to (7) above, it is clear that the QP can be moved to various Spec positions throughout the clause, even though some may be more marked or preferred than others. However, the question is what do we do when we have adverbs and QPs in the same clause, specifically in the TP layer. In the examples below, I present the issues that arise with Pollock's (1989) and Bobaljik's (2001) analyses.

Cinque (1999) follows Shlonksy (1991) and Giusti (1991, 1993) in considering the QP to be a quantifier head with a DP complement. Throughout

Cinque's (1999) analysis though, he analyzes French and Italian FQs, which both have multiple types—i.e. direct object, indirect object, and subject, in correlation with adverbs in order to develop a hierarchy. His analysis claims that, in these languages, floating quantifiers are not able to be in any position amongst adverbs. In other words, Cinque does not see the adverbs and FQs to be in the same positions since they can co-occur. Considering that Cinque (1999) argues for a more cartographic tree structure, it is understandable why he claims there are multiple positions where the FQs can go among the multiple "adverb-related projections" (p. 120). In (9), I provide a more complex example of the issues presented above—i.e. where does the QP move.

(9) 'The dogs have all probably chased the cats.'



In this tree, I show the DP '*the dogs'* and the finite auxiliary in their original positions as well as in the positions they move to. Their traces are represented by the parentheses. The issue with this tree is that there is no specifier position for the QP to move to above the adverb *PROBABLY* and below the T-head, which the finite

auxiliary has moved to. If we were attempting to show the QP moving to the position between the adverb *PROBABLY* and the ASP head *HAVE*, the QP would simply move to the SpecASPP. In other words, the only position that is not readily available in (9) is the SpecMP where the adverb *PROBABLY* is base generated.

In COCA's spoken register, regardless of whether the auxiliary was a form of *HAVE, BE,* or *MODAL*, there are only a couple examples of the QP being between the T-head and the adverb *PROBABLY*, and comparable results occurred for the QP being between the adverb *PROBABLY* and the ASP head[13]. I provide the two examples from COCA that occurred in (10).

(10) a.) "We've all probably have done it…"

b.) "You've all probably gotten a lot of advice…"

In these two examples, it is evident that English speakers can in fact move the QP to a position between the adverb and the auxiliary verb in the T. I will point out that in (10a) the speaker used a reduced form of auxiliary *HAVE* attached to the subject and also the full form in the position where the auxiliary originated. It seems to me that this is a result of a speaking error, which occurs here due to the fact that there are different functional elements interacting with one another. The greater number of projections that appear between T and the ASP-head lend more opportunity for error. Speakers do not want to add extraneous projections in the TP layer, in order to remove any potential processing difficulties or errors that could occur with too many different elements.

[13] The quantifiers used in the COCA searches were *ALL*, *BOTH,* and *EACH*.

Although there are multiple positions where the QP can move to, it is difficult to locate a position, in (9), for it to move to because there is no available specifier position above the adverb *PROBABLY*. The COCA results did not present any noteworthy favorability for a specific position for the QP to move to; therefore, I cannot really draw conclusions about this movement. I will leave this discussion for future research; however, for the purpose of this thesis, I attempt to highlight the potential need for multiple specifiers in order to provide a landing site for these QPs. Now, I address my synthesis of Chapters 4 and 5 in connection to the previous literature discussed in Chapter 2 and 3.

5.4 Synthesis

In this section, I dissect a minimalist tree structure that attempts to incorporate the various elements of the TP layer mentioned in Chapters 4 and 5, along with provide support for auxiliary verb movement to the T-head.

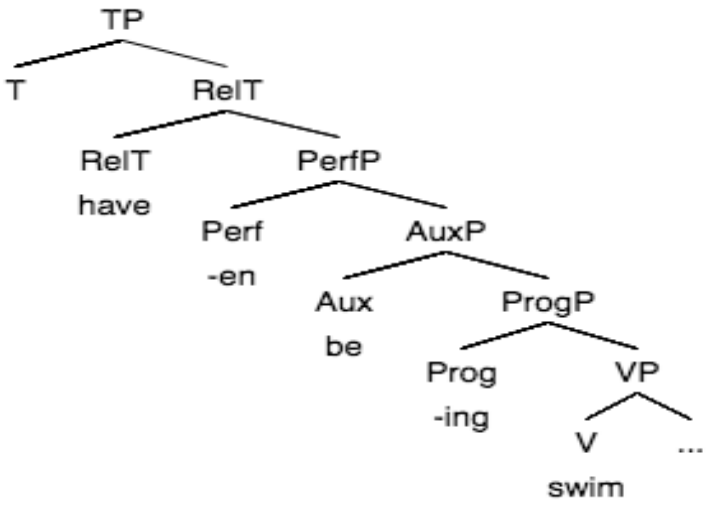
5.4.1 Adverb Placement

In Chapter 3, I addressed the issue of adverb placement—i.e. base generated or adjoined freely. I follow the idea of base generated adverbs, as I have mentioned. I have found that base generating the adverbs in the specifier positions allows for cross-linguistic analyses of verb movement—e.g. French and English. By having adverbs base generated in a specifier position, we are able to understand and analyze the variations in auxiliary head movement. In section 4.3, I mentioned that adverbs should be categorized according to larger "zones" based on tense, mood,

and aspect, which Ernst's model indicates, rather than in a rigid functional hierarchy, which Cinque favors.

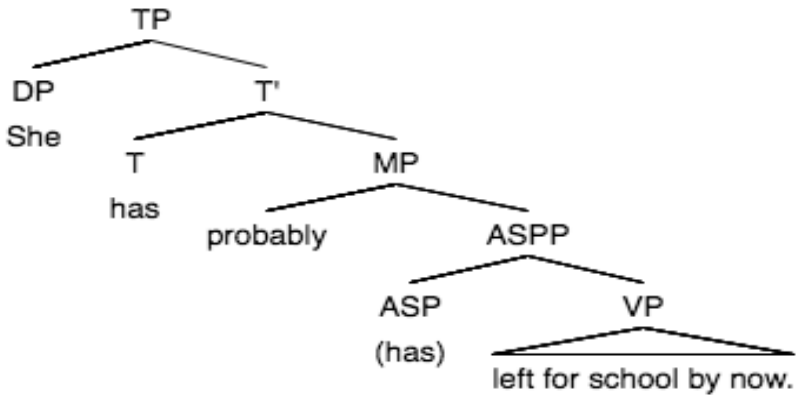
Now, Cinque is not alone in favoring a Cartographic representation of the clause. Haumann (2007) divides the TP layer up into specific phrases, such as PerfP (perfective) and ProgP (progressive), which are "checking sites for the past and present participles" (p. 190). Van Gelderen (2013) provides a tree, rendered as (11), based on Haumann's (2007) representation of the TP layer.

(11)



Although this tree is being used to express affix-hop, Haumann is splitting up the TP layer into many levels in order to extensively order the elements in their own functional projections. I tend to favor a minimalist representation of the TP in (12), which houses these elements in larger zones—i.e. tense, mood, and aspect.

(12)



The minimalist nature of this model is used to clearly visualize the movement of auxiliaries. I represent the auxiliary *has* as originating from the ASP-head rather than in a perfective phrase (PerfP), such as the one in (11), because it is expressing perfective aspect represented by its features[14]. Until now, I have ignored features; however, more minimalist tree representations of the clause tend to rely on features in order to illustrate checking. I now turn to these features in order to fill in the TP layer and connect the different functional elements to one another.

5.4.2 Feature Checking

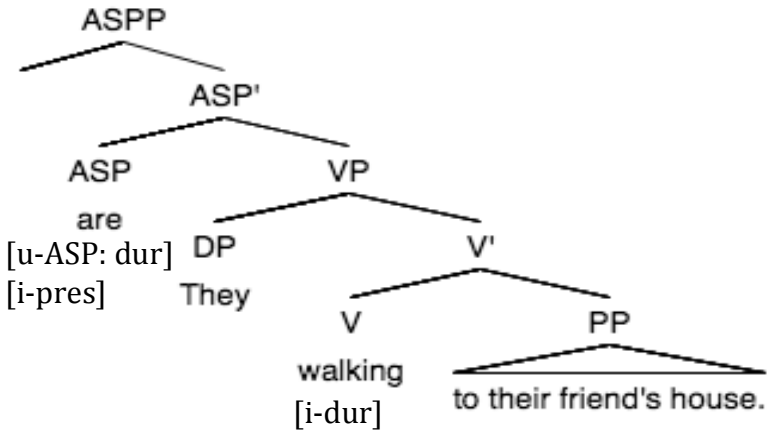
For the purpose of this thesis, I will only discuss features relevant to the verbs, T-head, and adverbs. As for checking uninterpretable and interpretable features, Adger (2003) and van Gelderen (2016) differ in terms of where these features are located. Interpretable features are found on the higher head according to Adger (2003); however, I prefer van Gelderen's proposal, which reverses this process. I have expressed this model in (13) below. According to van Gelderen

[14] The label assigned to the phrase is not so important here.

(2016), the reason for this proposal is centered on L1 acquisition, where children learn interpretable features before they learn the corresponding auxiliaries. Another reason is found in the history of English, where the affixes—e.g. *–ing*, *–ed*, etc.— have survived from Old English. Relevant to this thesis is the difference between the tense features, which have remained consistent throughout history, and the agreement features, which have essentially been lost, as discussed in Chapter 2. For these reasons, I claim that the main verbs contain the interpretable features of tense and aspect, and they value the uninterpretable features on the auxiliaries in higher heads.

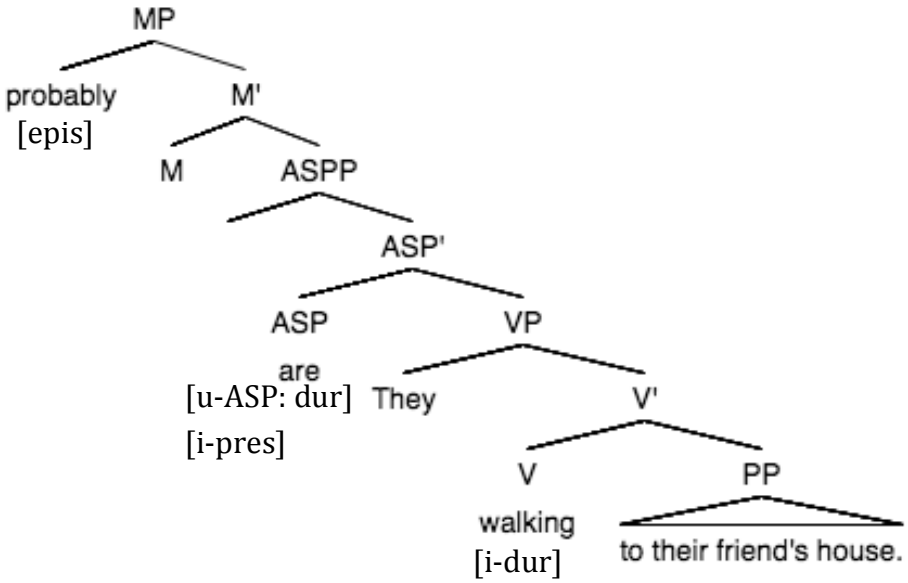
Beginning at the bottom of the TP layer, one of the roles features play in the minimalist tree is connecting the TP layer to the VP layer. The ASP-head, which is where I claim that the auxiliaries originate, has uninterpretable aspect features and needs to search down to the VP layer for interpretable features to value the ASP-head. The main verb in the VP layer contains the interpretable features of durative/progressive—i.e. [i-dur], which value the uninterpretable aspect features in the ASP-head. I have represented this process in (13).

(13)



Now that the features have been valued and checked, the MP can be added. I have left the M-head empty, but if we were to add a modal, there would be uninterpretable features that would check with the ASP-head below. In (14), I have shown the M-head empty with the adverb *PROBABLY* base-generated in the specifier position of the MP.

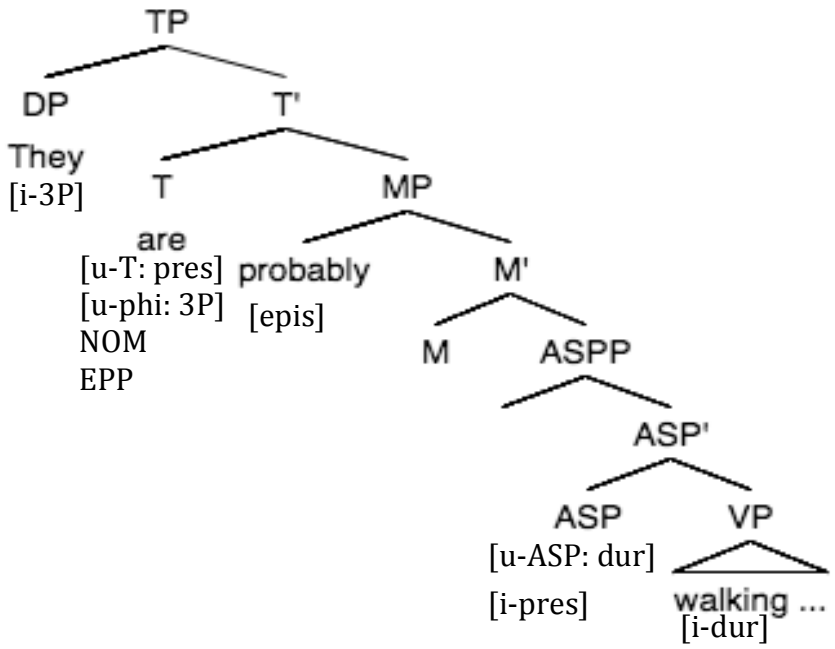
(14)



The features on the adverb in (14) are difficult to categorize, as I have discussed with Cinque's (1999) functional hierarchy. In Chapter 4, I conclude that it is more reasonable to group adverbs into "zones"; therefore, I have chosen to mark the adverb with a semantic feature to signify how it is functioning in the clause. Laenzlinger (2004) argues that adverbs have interpretable features and are checked when merged. However, for the purpose of this thesis, I follow van Gelderen's (2016) notion that these features are more semantic and leave this issue for future research.

Now, I will add the tense phrase to examine the features in the T-head and what this suggests about movement of the auxiliaries to this position. The T-head holds many different features, including uninterpretable tense [u-Tense], uninterpretable phi [u-phi], nominative case, and EPP. I present these features in (15); however, I only discuss the issues relevant to this thesis.

(15)



The auxiliary in the ASP-head values the uninterpretable tense features in the T-head. Earlier in Chapter 3, I presented the issues surrounding movement constraints and suggested that perhaps there is an EPP-like feature, which attracts the auxiliary to the T-head. Previously mentioned, Cyrino (2013) claims that French has this EPP-like feature to explain its verb movement (p. 299). However, all verbs in French exhibit movement to a higher head position. The issue here is with languages, such as English, which only move the auxiliaries to a higher position. Under Biberauer and Roberts' (2010) framework, verb movement is "an instance of an AGREE relation between T and V" (in Cyrino, 2013, p. 299). Chomsky (2000, 2001) claims that, "T is a Probe, V is a Goal" (in Cyrino, 2013, p. 299). As in Ayuan (2005: 144), Chomsky (1995) also proposed the idea of checking features in minimalism through his Full Interpretation Principle, as in (16):

(16) A strong [+finite] verb moves to INFL before Spell-Out to check and erase its INFL features

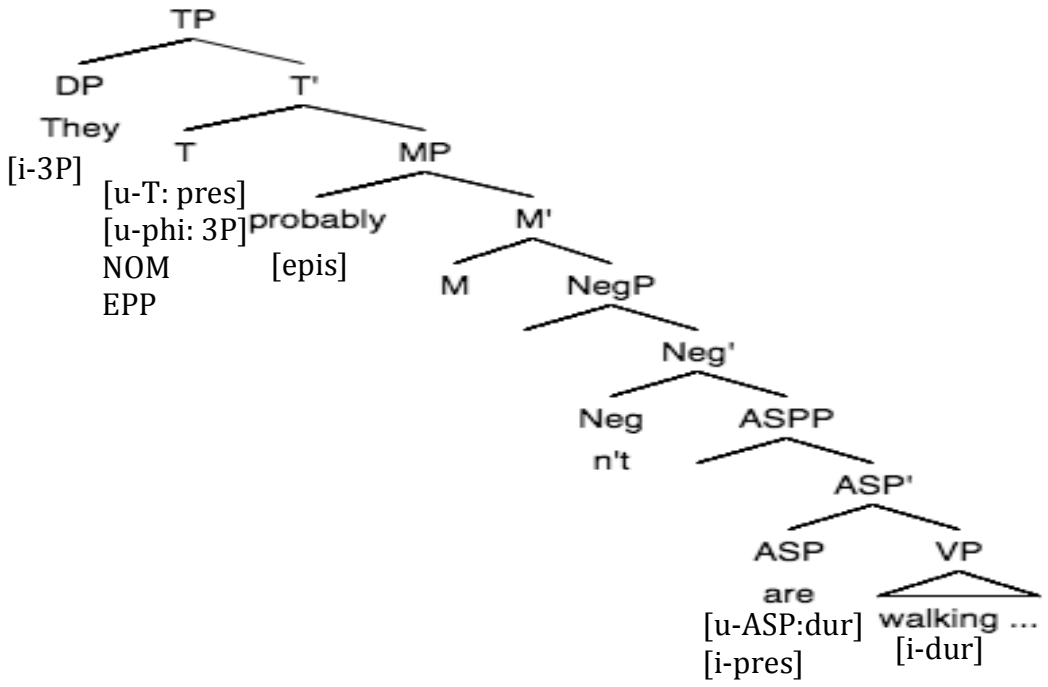
Chomsky's principle claims that there is a [+finite] feature in order to explain the need for movement—i.e. to check features. However, as we have seen, not all languages that are morphologically rich exhibit movement, just as some languages, such as English, which has gotten morphologically poor, do in fact illustrate some kind of movement to a higher position—i.e. the auxiliaries exclusively. The richness of the verb may not be the only factor making a verb "strong"; perhaps this feature is not applicable cross-linguistically. I will leave this issue of features for future research; however, based on the corpus results, it is clear that English speakers favor auxiliary movement to the T-head, and it is probable to suggest that this occurrence is influenced by outlying factors.

5.4.3 Negation Placement

I turn now to the issues of negation discussed earlier in this chapter. When negation interacts with adverbs, it seems that auxiliary verb movement is affected. I suggested that NegP is not directly below the T-head and rather is between the MP and the ASPP based on the issues involved with adding an epistemic adverb, such as *PROBABLY.* Some factor beyond the syntax is "blocking" the auxiliary and the *n't* clitic from moving to the T-head. I mentioned that this could be due to the scope of the adverb, the complexity of the newly formed constituent, or perhaps a combination of the two.

By placing the NegP directly below the MP, we avoid the issue of grammatical word order when the negation marker is attached to the auxiliary. I have drawn a tree in (17) to illustrate this claim[15].

(17)



The COCA results in Figures 6-9 revealed that negation tends to be realized below the adverb *PROBABLY* and above the adverb *ALWAYS*. By having the NegP in this position, I am able to represent English speakers' favorability for where the auxiliary can attach to the negation, regardless of the adverb being in SpecMP or SpecASPP.

[15] If a modal auxiliary were added to the clause, this placement of the NegP would be inadequate; however, I am leaving this issue for future research. The purpose here is to show that adverbs are clearly generated in different areas throughout the TP-layer, and the COCA results support this claim through auxiliary to T movement.

5.5 Conclusion

The goal of this chapter was to introduce and analyze other elements of the TP-layer in order to justify and effectively illustrate English auxiliary verb movement. In discussing issues surrounding negation and floating quantifiers, I suggest that a minimalist tree structure, such as (17) where features are central, is capable of representing the various elements in the TP-layer, all while demonstrating English speakers' favorability of auxiliary verb movement to the T-head.

Chapter 6

CONCLUSION

6.1 Chapter Conclusions

Throughout this thesis, I focused on developing a more nuanced understanding of auxiliary verb movement in Modern English by examining spoken corpus data and the placement of other TP-layer projections. In Chapter 1, I posed four research questions in order to build on limited discussion from the prior literature. These questions asked whether auxiliary verb movement was still occurring, how were we able to know based on other elements of the TP-layer, and did richness of morphology and inflection provide any further support. I attempted to address and answer these questions throughout the chapters of this thesis.

In Chapter 2, I presented a comparative analysis of verb movement in English diachronically, while discussing issues of agreement loss. The purpose of this chapter was to illustrate the issues concerning loss of morphological markings and agreement in English simultaneously with the loss of main verb movement. In doing so, I would allude to the historical developments of English verbs and use this information to address why auxiliaries in Modern English have different constraints compared to main verbs.

In Chapter 3, I explored the different theories surrounding head movement, specifically verb movement, and adverb placement in the TP-layer. The two major frameworks were Cinque (1999) and Ernst (2002), however others were referenced throughout the literature review, as well. The overall aim of this chapter was to

illustrate the need for further discussion in terms of auxiliary movement and adverb placement because many of the theories were either too rich or too simplified. The gap in the literature that did not consider other elements of the TP-layer led to the need to analyze the issues further.

In Chapter 4, I applied the theories outlined in Chapters 2 and 3 to the corpus data. I took a few of the adverbs found in the TP-layer, according to Cinque's (1999) functional hierarchy in order to determine whether English speakers preferred to have auxiliaries move to the T-head or not. The data from COCA presented that English speakers prefer auxiliary to T movement, even above adverbs that are considered, by Cinque, to be in the highest possible projection in the TP-layer. With auxiliary *BE* being the most inflected verb in English to survive, it is clear that movement of this richly inflected auxiliary is still prevalent, based on the discussion in Chapter 2.

The other question in this chapter was determining whether Cinque's rigid structure for ordering adverbs was in fact valid for English. The data also revealed that we cannot rely on giving every adverb a projection in the clause; therefore, I suggested a model by Butler (2003) and van Gelderen (2013), which places adverbs into larger zones based on the different areas of the TP-layer—i.e. Tense, Mood, and Aspect.

In Chapter 5, I build on the prior chapters in discussing the issues with negation phrases and floating quantifiers. Negation phrases evidently affected the auxiliary verbs' movement, especially when adverbs were involved too. The position of the NegP needs to be below the MP when it is being realized by an

epistemic adverb, such as *PROBABLY*, in the specifier, in order to remain grammatically correct. The data from this chapter also supported this claim.

This chapter concluded with a synthesis of the Minimalist tree structure using features. In doing so, I claimed that the Cartographic representations tend to be too rich and fill up the spine of the clause with too many projections.

6.2 Contributions to Syntax

Although I favor a Minimalist structure, there were attractive notions mentioned throughout the Cartographic research in terms of adverbs and negation. For example, the use of base-generated adverbs and multiple positions for NegP became useful to my analysis. I found that there was some common ground between the Minimalist and Cartographic; thus, I was able to find a way to effectively implement a synthesis of the prior literature.

This thesis aimed to fill a gap in the literature concerning auxiliary verb movement in Modern English. In doing so, I was able to reconstruct a tree structure that was able to illustrate this movement in relation to other TP-layer elements. The prior discussion on negation and floating quantifiers with auxiliary movement in English was lacking in depth. The data from COCA on negation, auxiliaries, and adverbs helped to determine an appropriate position for the NegP within the TP-layer that could account for auxiliary verb movement. Although I do not claim to have completely answered all of the under addressed issues, I hope to have at least illuminated the issues and challenged the discussion.

6.3 Limitations and Suggestions for Future Research

As for some of this thesis's limitations, I was only able to utilize one corpus's data. Although I was able to obtain a lot of data and answer some of my questions, I do believe that examining other corpora as well would further enrich some of the claims made. A thorough analysis of floating quantifiers would also be beneficial in determining the grammaticality of the QP being moved to a position between the T-head and the MP; however, through COCA's data, I was unable to fully determine these issues.

This thesis only begins to offer some analyses of auxiliary verb movement. As I mentioned throughout this thesis, there are many areas that are left under addressed. Some of these issues involve features on adverbs and whether or not it is valid to the claim that there is an EPP-like feature in the T-head that attracts auxiliaries in English. In other words, since I simply present evidence of the favorability of auxiliary movement, the next issue to be analyzed is answering the question of why the movement occurs.

In terms of the NegP, it is worth furthering the analysis to determine if there are multiple NegPs throughout the TP-layer—e.g. one below the T-head and one below the MP. I am still interested in auxiliary verb movement and negation and would like to continue to analyze these projections in future research, as well. Clearly, the TP-layer has a lot to offer, and the interaction of these projections is one area that can reveal a lot about a language, as well as connect it in various ways cross-linguistically.

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